HCD-TB20

SERVICE MANUAL

Ver 1.1 2002. 10

AEP Model
UK Model
E Model

This set is the tuner, deck, CD and amplifier section in CHC-TB20.

CD SECTION	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM63E
	Base Unit Type	BU-30BD60C
	Optical Pick-up Type	A-MAX.3
TAPE DECK SECTION	Model Name Using Similar Mechanism	NEW
	Tape Transport Mechanism Type	CMAL1Z222A

SPECIFICATIONS

Amplifier section

European models

DIN power output (Rated): 45 + 45 watts (6 ohms at 1 kHz, DIN)
Continuous RMS power output (Reference): 60 + 60 watts (6 ohms at 1 kHz, 10% THD)
Music power output (Reference): 120 + 120 watts (6 ohms at 1 kHz, 10% THD)

Other models

Measured at AC 120/220/240 V, 50/60 Hz:
DIN power output (Rated): 40 + 40 watts (6 ohms at 1 kHz, DIN)
Continuous RMS power output (Reference): 50 + 50 watts (6 ohms at 1 kHz, 10% THD)

Inputs
MD (VIDEO) IN (phono jacks): voltage 450 mV (250 mV), impedance 47 kilohms

Outputs
PHONES (stereo minijack): accepts headphones of 8 ohms or more.
SPEAKER: accepts impedance of 6 to 16 ohms.

CD player section

System: Compact disc and digital audio system
Laser: Semiconductor laser (λ=795 nm) Emission duration: continuous
Frequency response: 2 Hz – 20 kHz (±0.5 dB)
CD DIGITAL OUT (Square optical connector jack, rear panel)
Wavelength: 660 nm

Tape deck section

Recording system: 4-track 2-channel stereo
Frequency response: 50 – 13,000 Hz (±3 dB), using Sony TYPE I cassettes

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range: 87.5 – 108.0 MHz (50 kHz step)
Antenna: FM lead antenna
Antenna terminals: 75 ohms unbalanced
Intermediate frequency: 10.7 MHz

— Continued on next page —

COMPACT HiFi COMPONENT SYSTEM

9-873-613-02
2002J1600-1
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Sony Corporation
Home Audio Company
Published by Sony Engineering Corporation

SONY®

AM tuner section

Tuning range
European models: 531 – 1,602 kHz (with the interval set at 9 kHz)
Pan-American models: 531 – 1,710 kHz (with the interval set at 9 kHz)
530 – 1,710 kHz (with the interval set at 10 kHz)
Other models: 531 – 1,602 kHz (with the interval set at 9 kHz)
530 – 1,710 kHz (with the interval set at 10 kHz)
Antenna: AM loop antenna
External antenna terminals
Intermediate frequency: 450 kHz

General

Power requirements
European models: 230 V AC, 50/60 Hz
Mexican model: 120 V AC, 60 Hz
Korean model: 220 V AC, 60 Hz
Other models: 120 V, 220 V, 230 – 240 V AC, 50/60 Hz
Adjustable with voltage selector

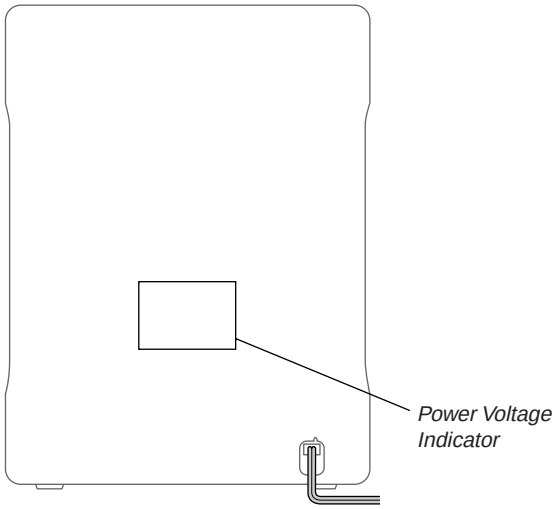
Power consumption
European models: 120 watts
0.5 watts (at the Power Saving Mode)
Other models: 100 watts

Dimensions (w/h/d) incl. projecting parts and controls
Approx. 215 × 285 × 386 mm

Mass: Approx. 7.7 kg

Design and specifications are subject to change without notice.

MODEL IDENTIFICATION
– Back Panel –



Model	Power Voltage Incdication
Mexican model	AC: 120 V 60 Hz
AEP, UK models	AC: 230 V 50/60 Hz
E model	AC: 120, 220, 230 – 240 V 50/60 Hz
Korea model	AC: 220 V 60 Hz

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SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLING LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VIGYAZAT! : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

This caution label is located inside the unit.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

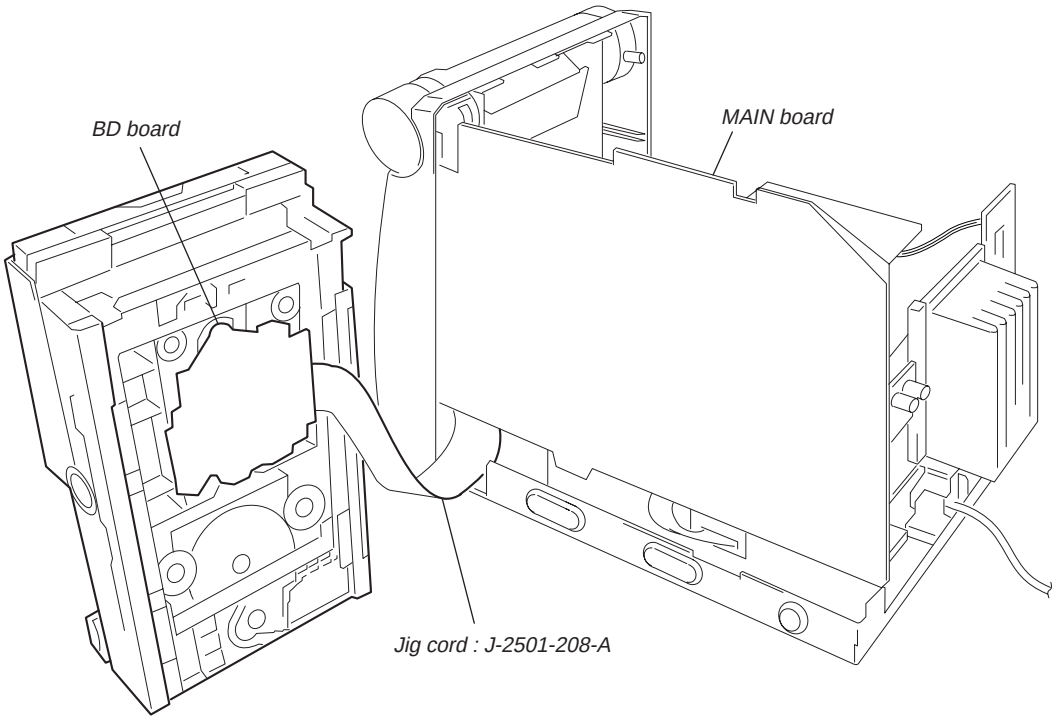
Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

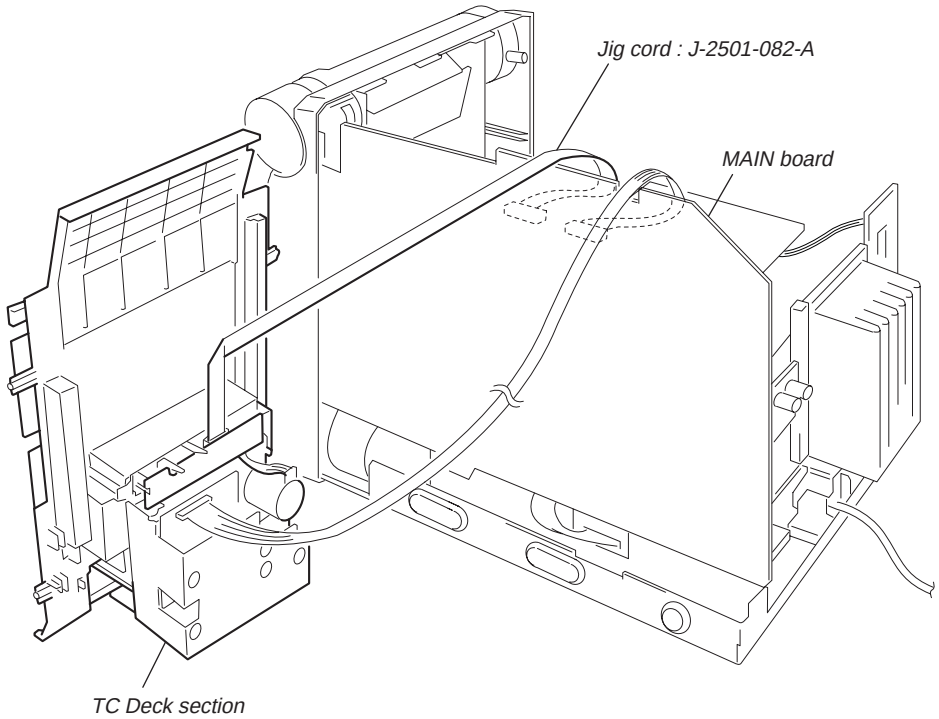
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Service position of the CD mechanism deck



Service position of the TAPE cassette mechanism deck



SECTION 2
GENERAL

This section is extracted from instruction manual.

A – G

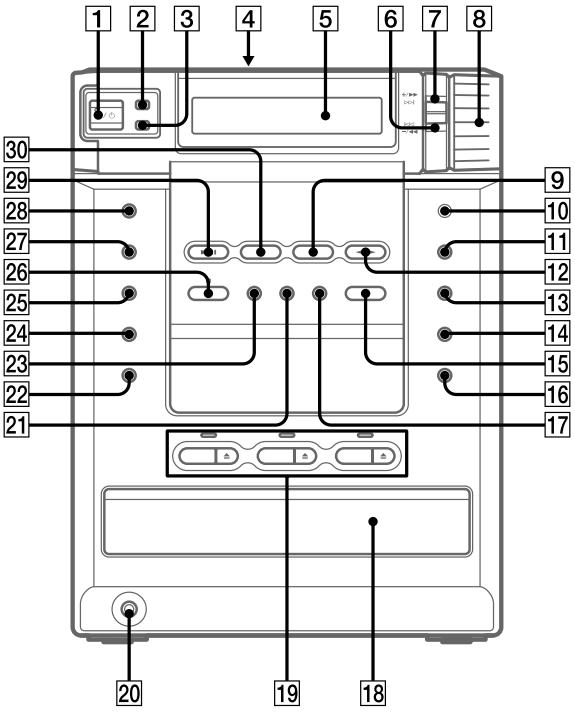
CD disc tray 18 (8)
CD SYNC 27 (19)
CD ►II 29 (9)
DBFB 22 (21)
DIMMER 2 (24)
DISC 1 – 3 19 (10)
DISC 1 – 3 ⏏ 19 (8)
DISPLAY 3 (24)
Display window 5
EDIT 25 (20)
ENTER/YES 13 (8, 10, 12, 13, 14, 21, 22, 23)
EQ EDIT 17 (22)
FUNCTION 15 (9, 18)
GROOVE 21 (21)

M – Z

MD (VIDEO) 9 (27)
MUSIC MENU 23 (22)
PHONES jack 20
PLAY MODE/TUNING MODE 14 (9, 13, 15)
REC PAUSE/START 28 (19)
Remote sensor 10
REPEAT/FM MODE 16 (9, 15)
SURROUND 24 (21)
Tape deck lid 4 (18)
TAPE ◄► 12 (18, 19)
TUNER/BAND 30 (13, 15)
TUNER MEMORY/DIRECTION 11 (14, 19)
VOL 8

BUTTON DESCRIPTIONS

I/⏻ 1
+/►► ▷▷I 7
■ 26
I◁◁ –/◄◄ 6



A – G

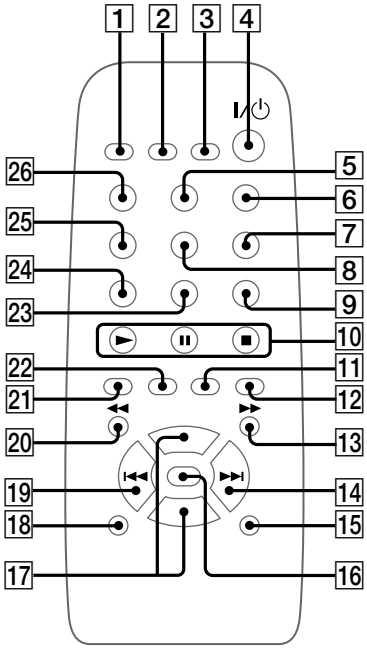
CHECK 8 (11)
CLEAR 12 (11)
CLOCK/TIMER SELECT 2 (21, 24)
CLOCK/TIMER SET 3 (8, 20, 23)
DBFB 26 (21)
DIMMER 23 (24)
DISC SKIP 9 (9, 11)
DISPLAY 18 (24)
ENTER/YES 11 (8, 10, 12, 13, 14, 21, 22, 23)
FUNCTION 15 (9, 18)
GROOVE 16 (21)

M – Z

MENU/NO 21 (13)
MUSIC MENU 6 (22)
NAME EDIT/CHARACTER 22 (11, 16)
REPEAT 7 (9)
SCROLL 25 (12, 25)
SLEEP 1 (23)
SURROUND 5 (21)
TUNER/BAND 24 (13, 15)
VOL +/– 17

BUTTON DESCRIPTIONS

I/⏻ 4
► 10
■ 10
II 10
►► 13
►►I 14
I◄◄ 19
◄◄ 20



Setting the clock

1 **Turn on the system.**

2 **Press CLOCK/TIMER SET on the remote.**

3 **Press I◄◄ or ►►I on the remote to set the hour.**

4 **Press ENTER/YES.**

The minute indication flashes.

5 **Press I◄◄ or ►►I on the remote to set the minute.**

6 **Press ENTER/YES.**

The clock starts working.

If you make a mistake

Press ◄◄ or ►► on the remote repeatedly until the incorrect item flashes, then set it again.

To adjust the clock

1 Press CLOCK/TIMER SET on the remote.

2 Press I◄◄ or ►►I on the remote to select "CLOCK SET?", then press ENTER/YES.

3 Do the same procedures as step 3 to 6 above.

Note

You cannot set the clock in the Power Saving Mode.

Loading a CD

1 **Press DISC 1 – 3 ⏏.**

The disc tray opens.

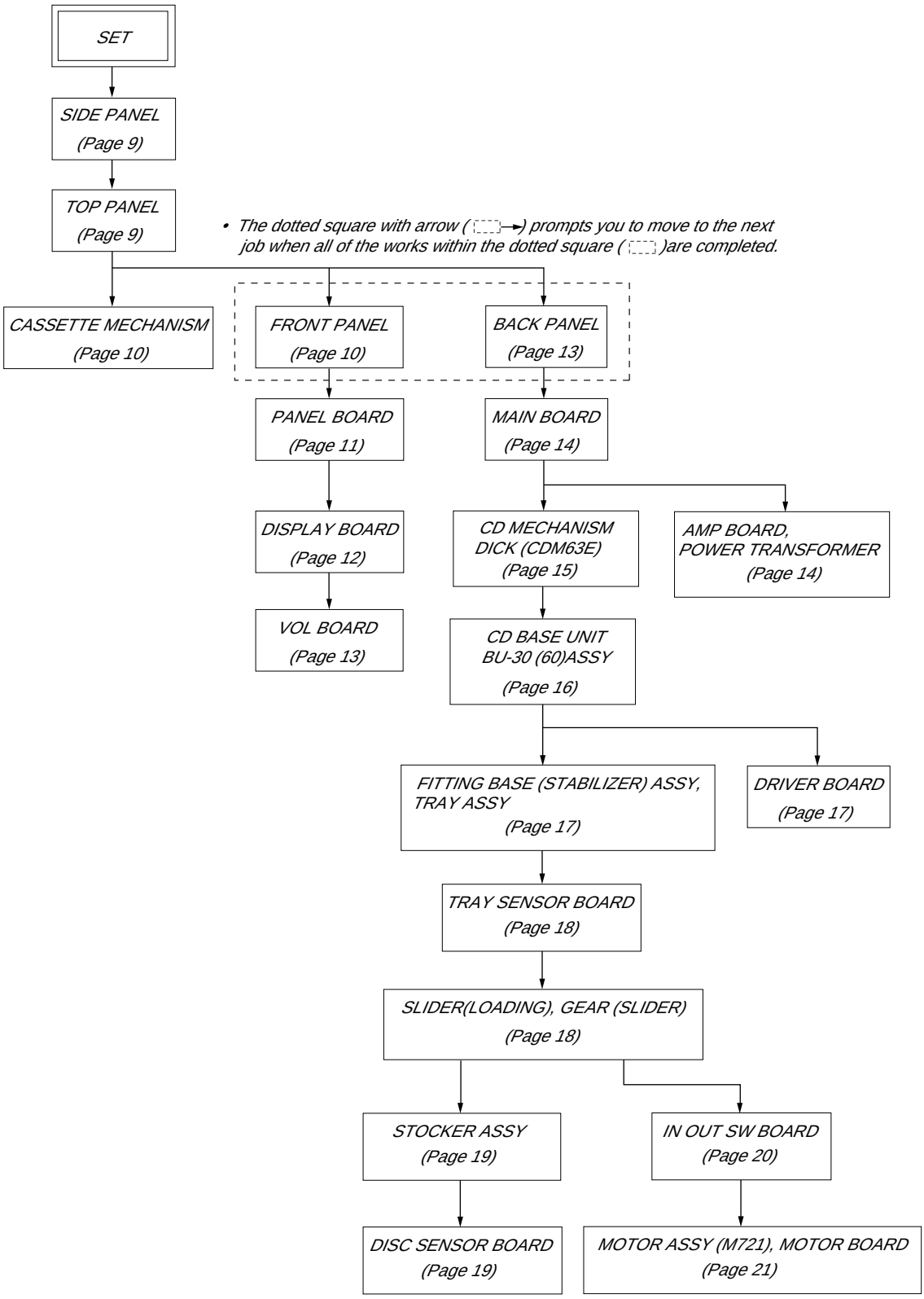
2 **Place a CD with the label side up on the disc tray.**

To load other CDs, press a different ⏏ and place the CD in the disc tray.

3 **Press the same ⏏ again to close the disc tray.**

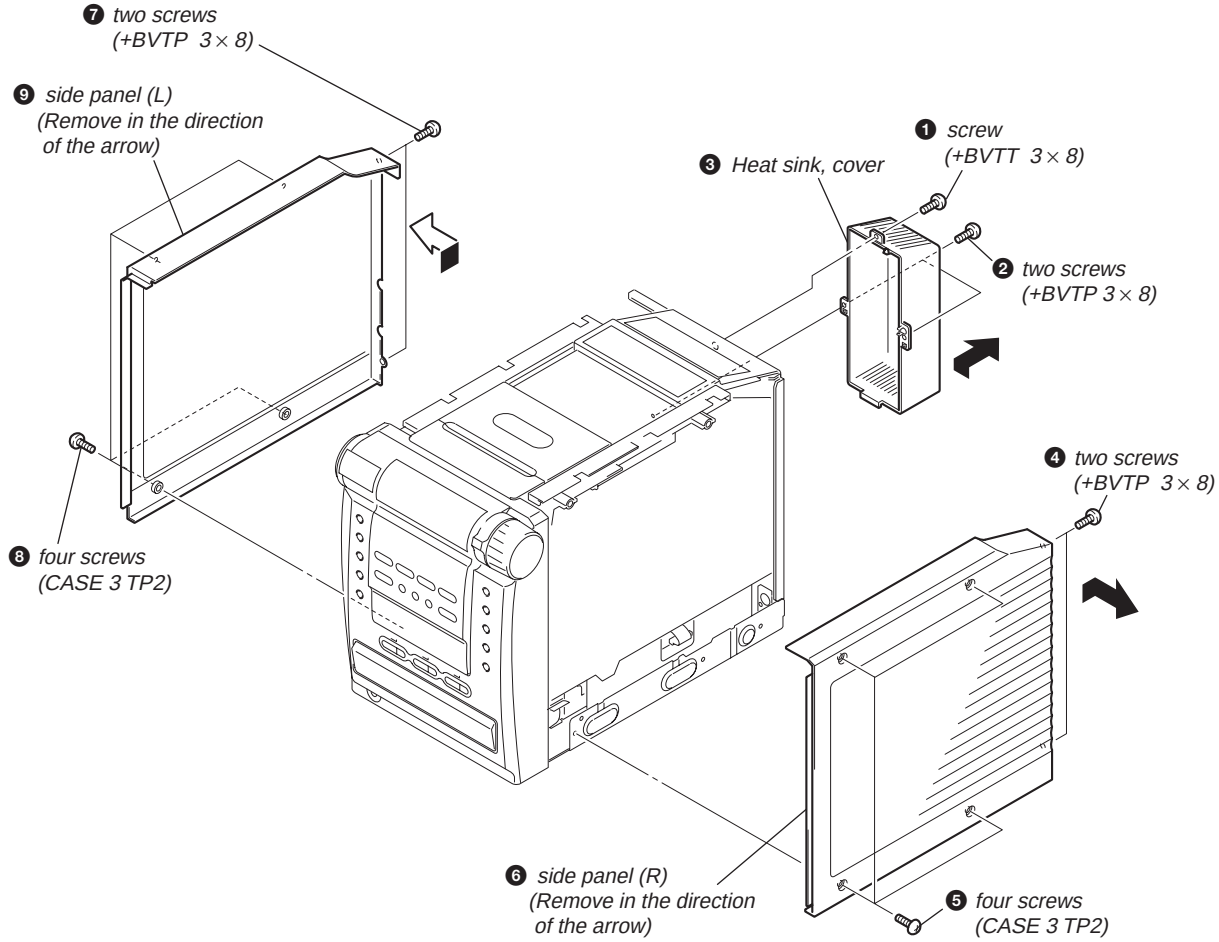
SECTION 3
DISASSEMBLY

• The equipment can be removed using the following procedure.

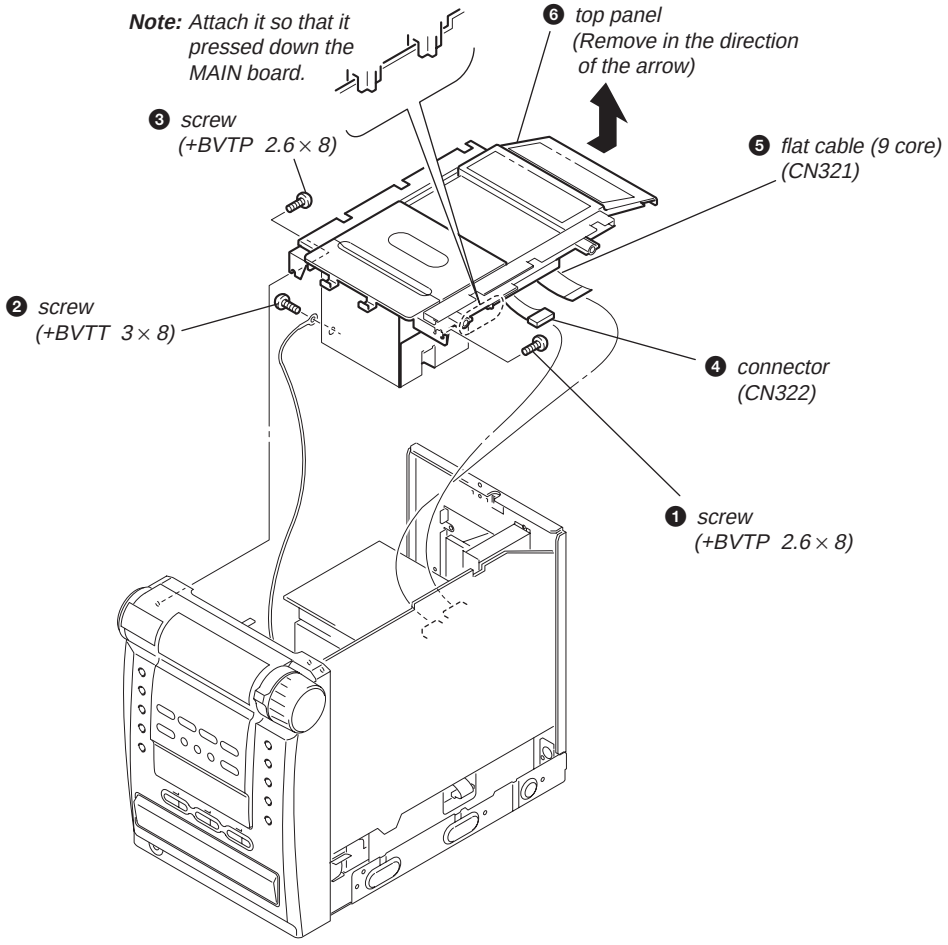


Note : Follow the disassembly procedure in the numerical order given.

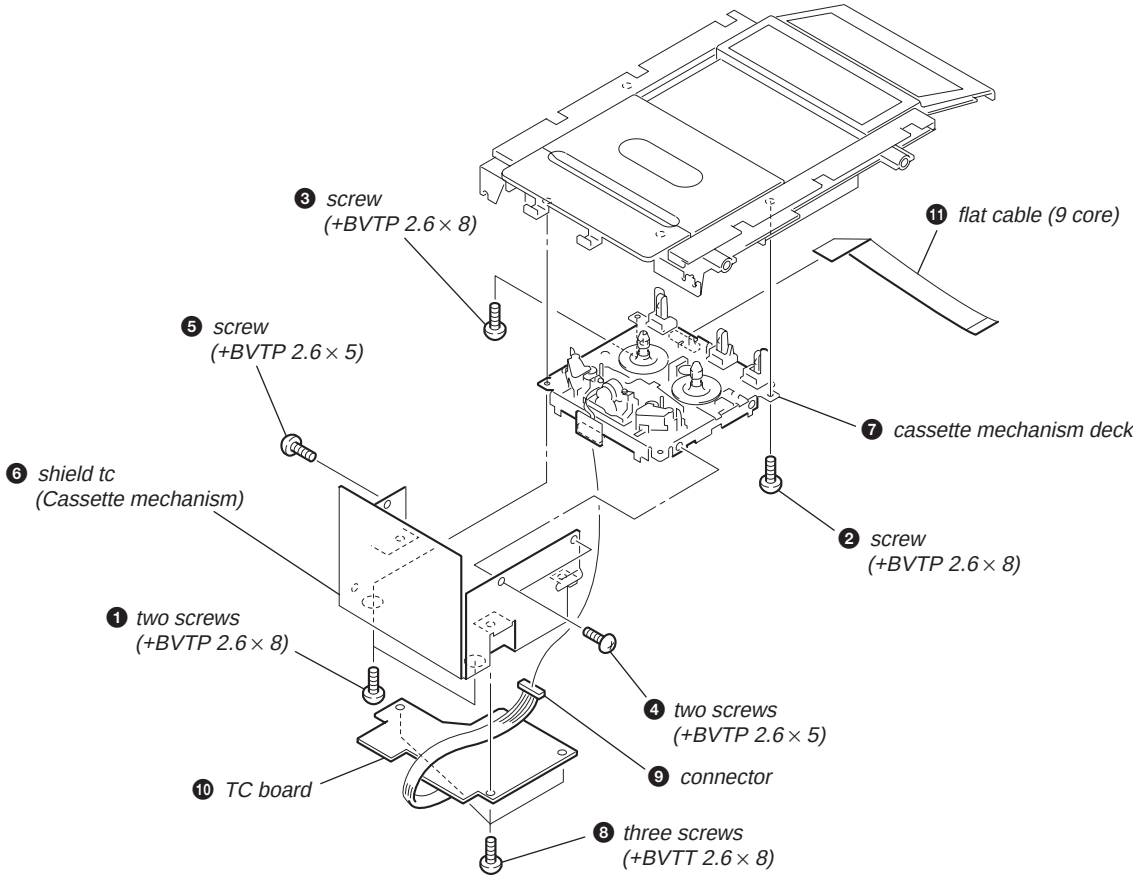
3-1. Side Panel


❼ two screws (+BVTP 3× 8)
❾ side panel (L) (Remove in the direction of the arrow)
❶ screw (+BVTT 3× 8)
❸ Heat sink, cover
❷ two screws (+BVTP 3× 8)
❹ two screws (+BVTP 3× 8)
❽ four screws (CASE 3 TP2)
❻ side panel (R) (Remove in the direction of the arrow)
❺ four screws (CASE 3 TP2)

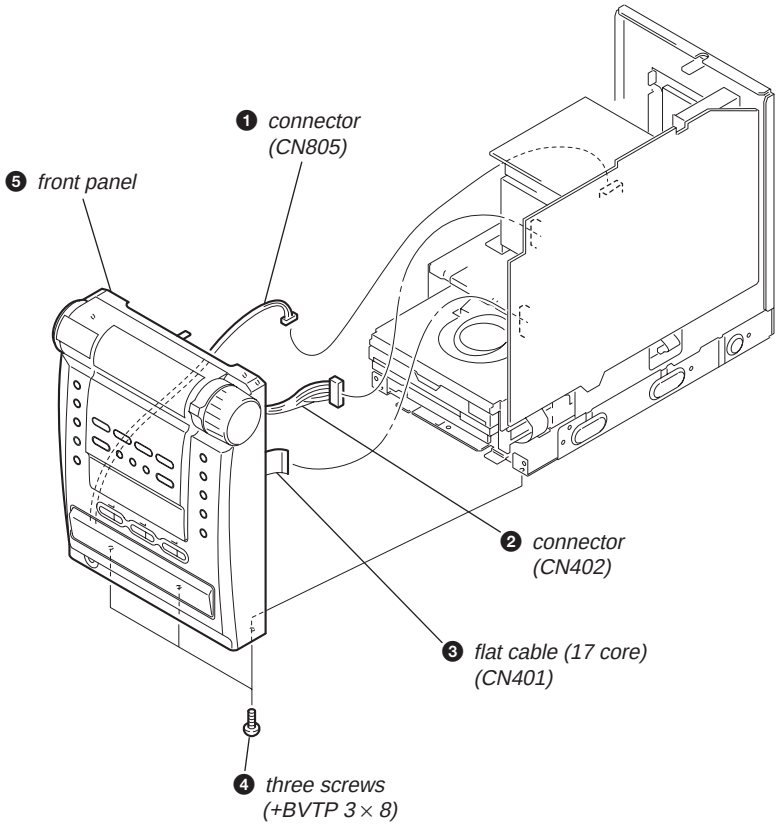
3-2. Top Panel


Note: Attach it so that it pressed down the MAIN board.
❻ top panel (Remove in the direction of the arrow)
❸ screw (+BVTP 2.6× 8)
❺ flat cable (9 core) (CN321)
❷ screw (+BVTT 3× 8)
❹ connector (CN322)
❶ screw (+BVTP 2.6× 8)

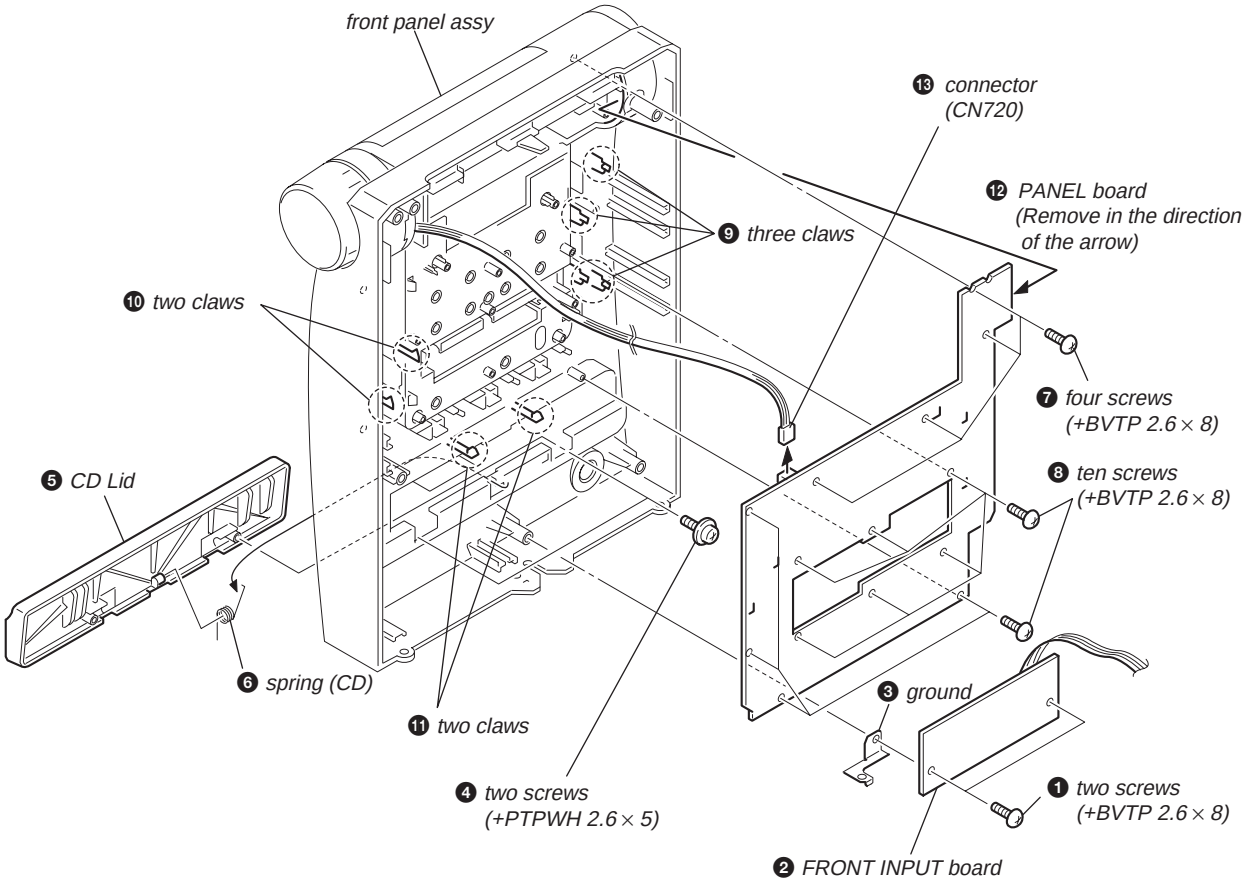
3-3. Cassette Mechanism



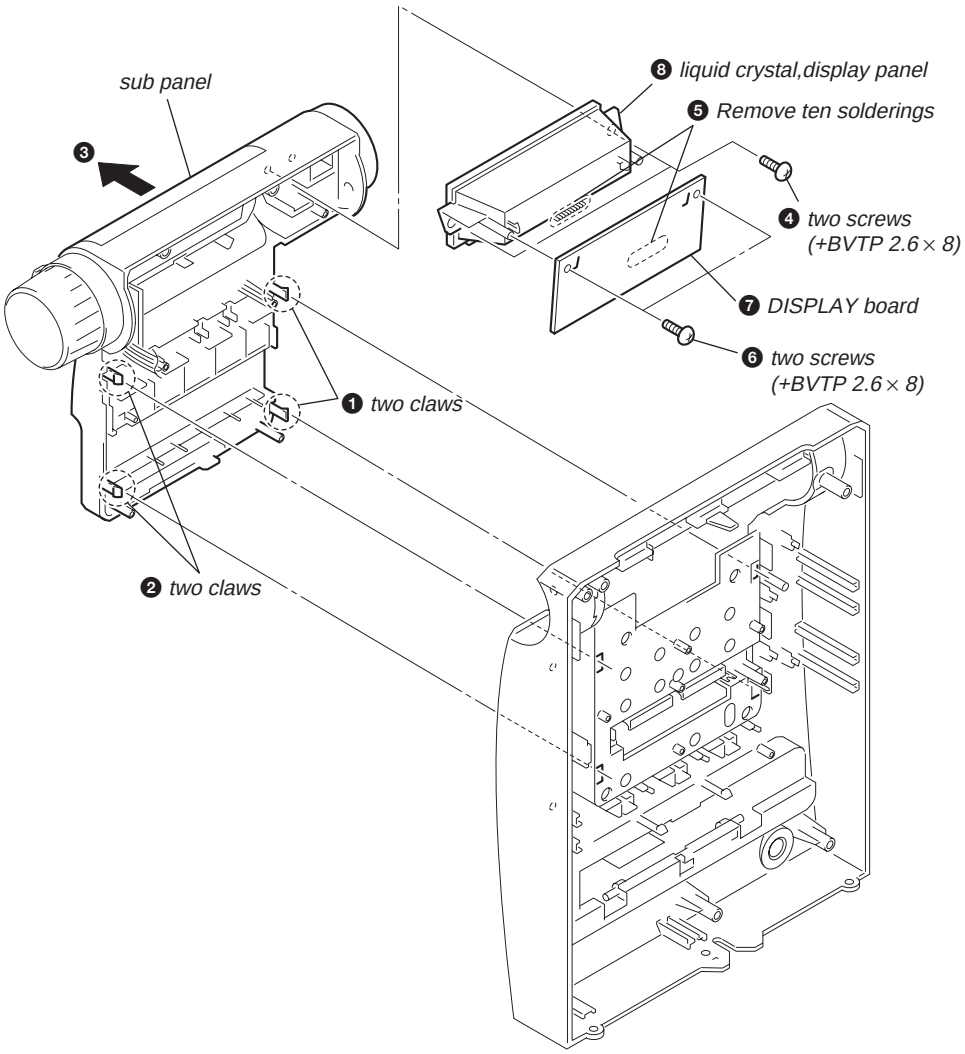
3-4. Front Panel



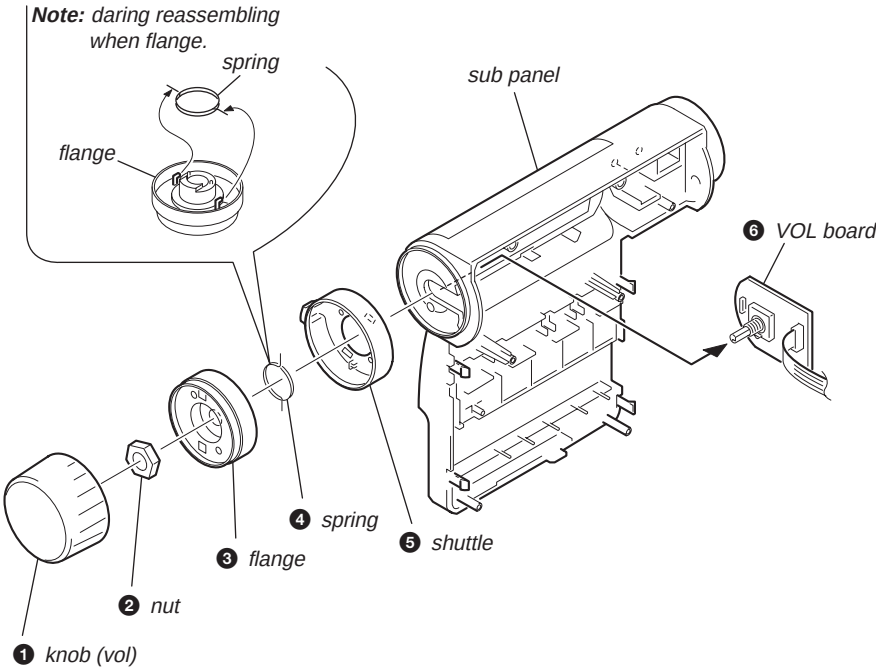
3-5. PANEL Board


front panel assy
13 connector (CN720)
12 PANEL board (Remove in the direction of the arrow)
9 three claws
10 two claws
7 four screws (+BVTP 2.6 × 8)
8 ten screws (+BVTP 2.6 × 8)
5 CD Lid
6 spring (CD)
11 two claws
3 ground
4 two screws (+PTPWH 2.6 × 5)
1 two screws (+BVTP 2.6 × 8)
2 FRONT INPUT board

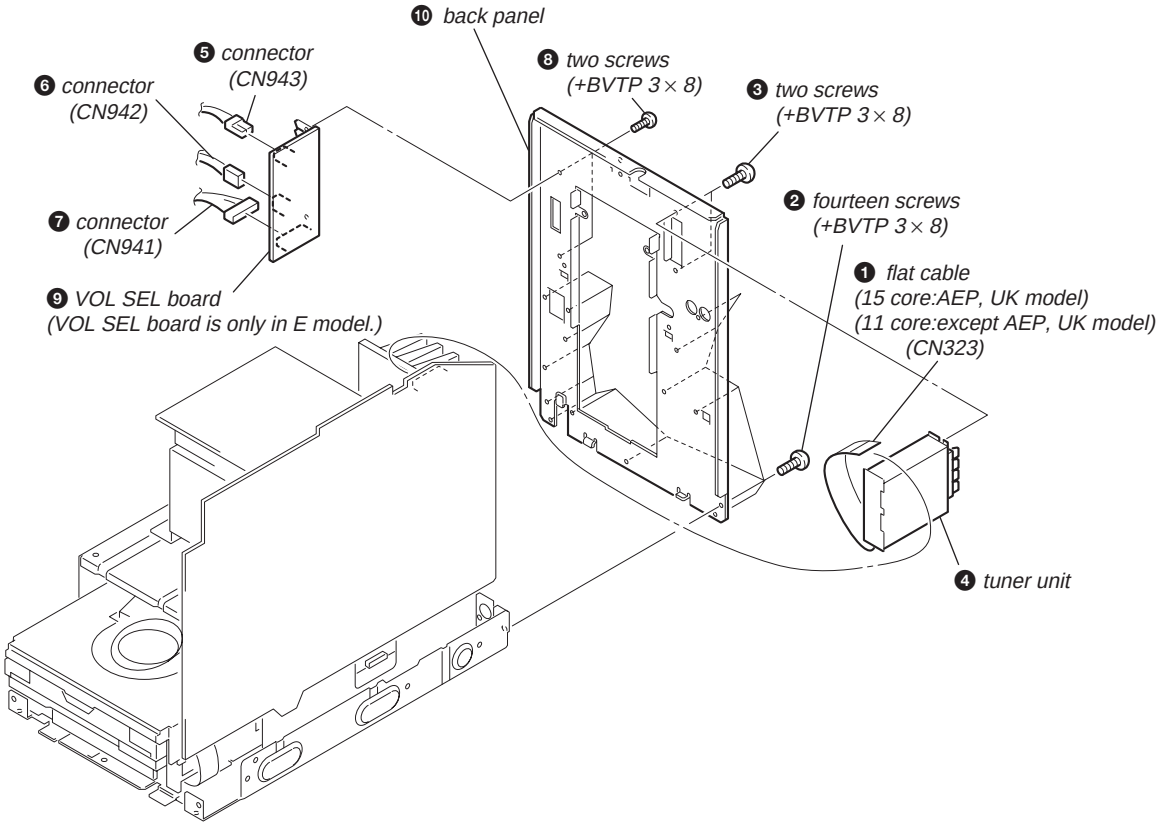
3-6. DISPLAY Board



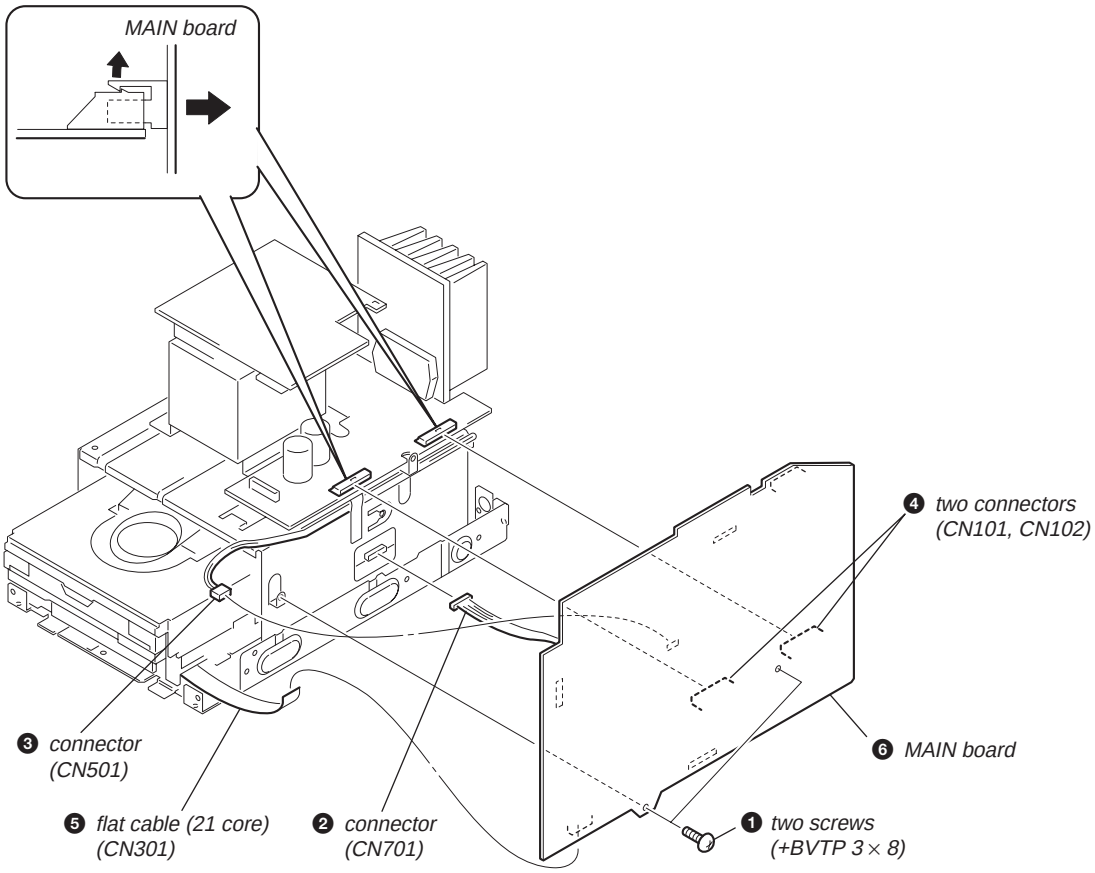
3-7. VOL Board



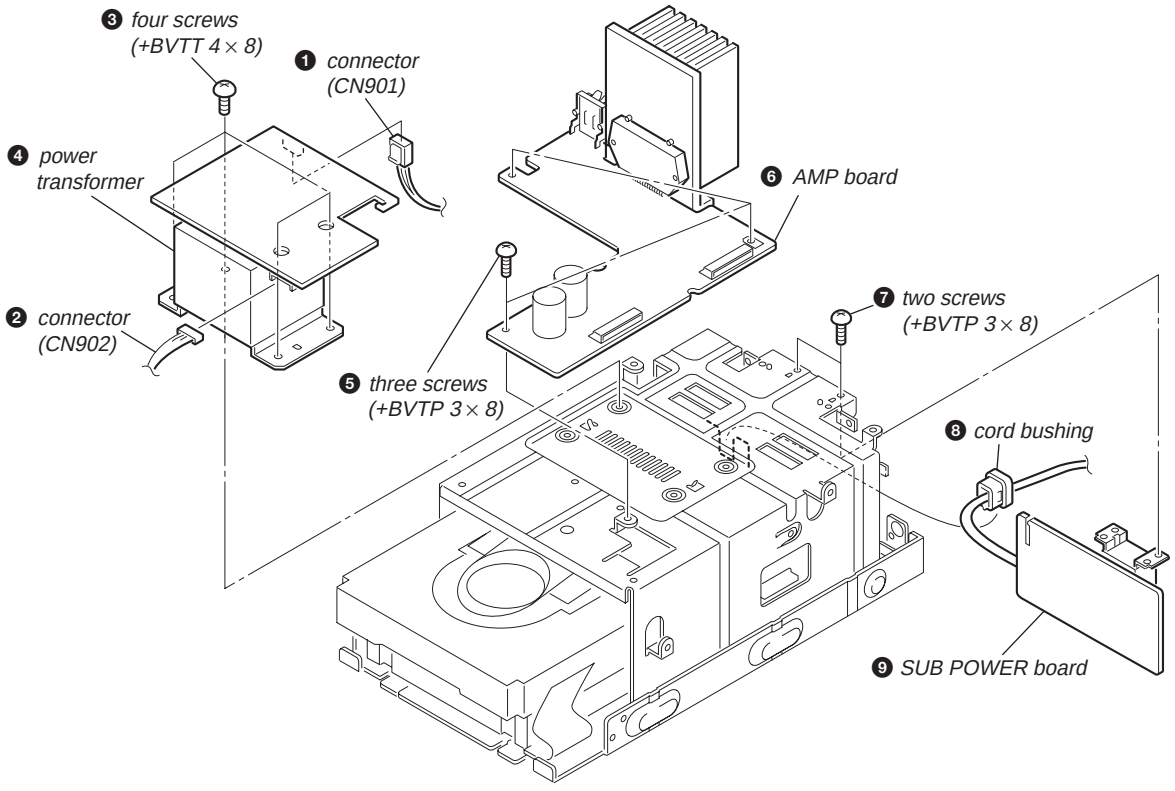
3-8. Back Panel


❿ back panel
❺ connector (CN943)
❻ connector (CN942)
❽ two screws (+BVTP 3× 8)
❸ two screws (+BVTP 3× 8)
❷ fourteen screws (+BVTP 3× 8)
❼ connector (CN941)
❶ flat cable (15 core:AEP, UK model) (11 core:except AEP, UK model) (CN323)
❾ VOL SEL board (VOL SEL board is only in E model.)
❹ tuner unit

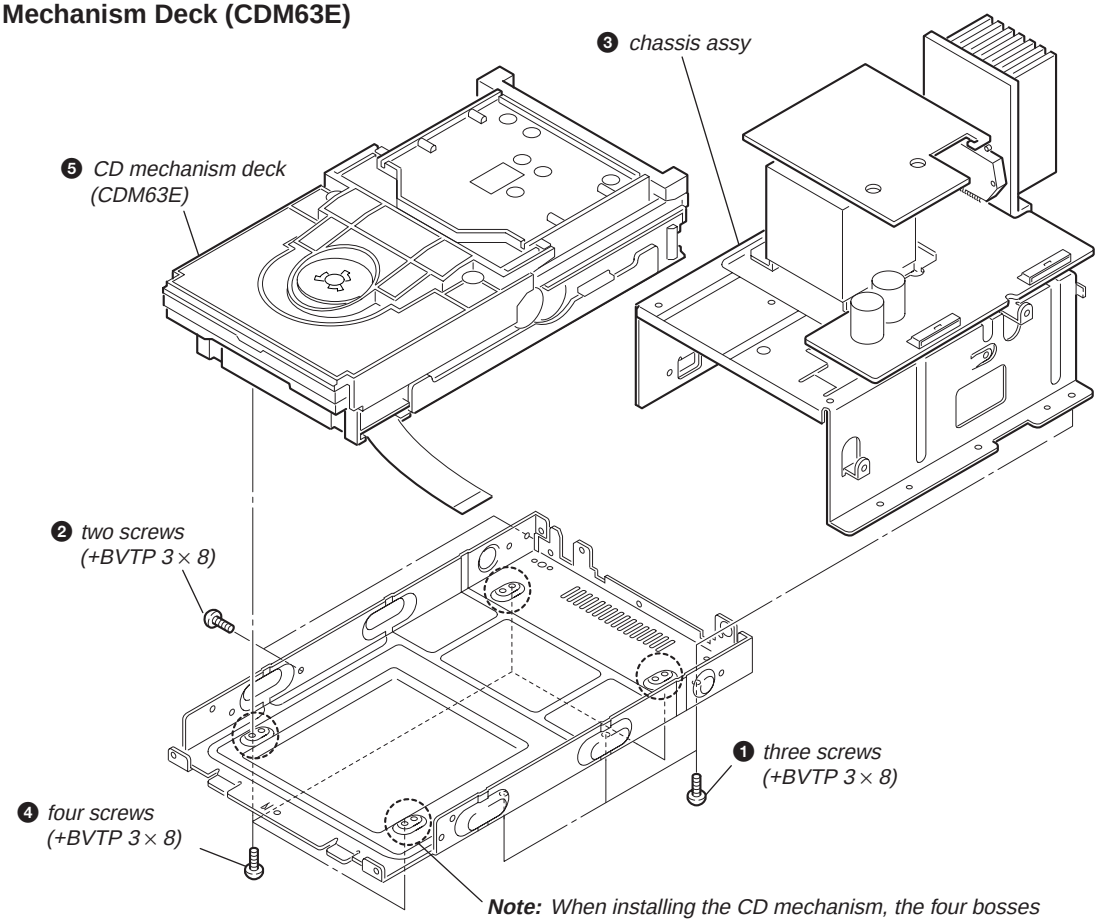
3-9. MAIN Board


MAIN board
❹ two connectors (CN101, CN102)
❸ connector (CN501)
❻ MAIN board
❺ flat cable (21 core) (CN301)
❷ connector (CN701)
❶ two screws (+BVTP 3 × 8)

3-10. AMP Board, Power Transformer

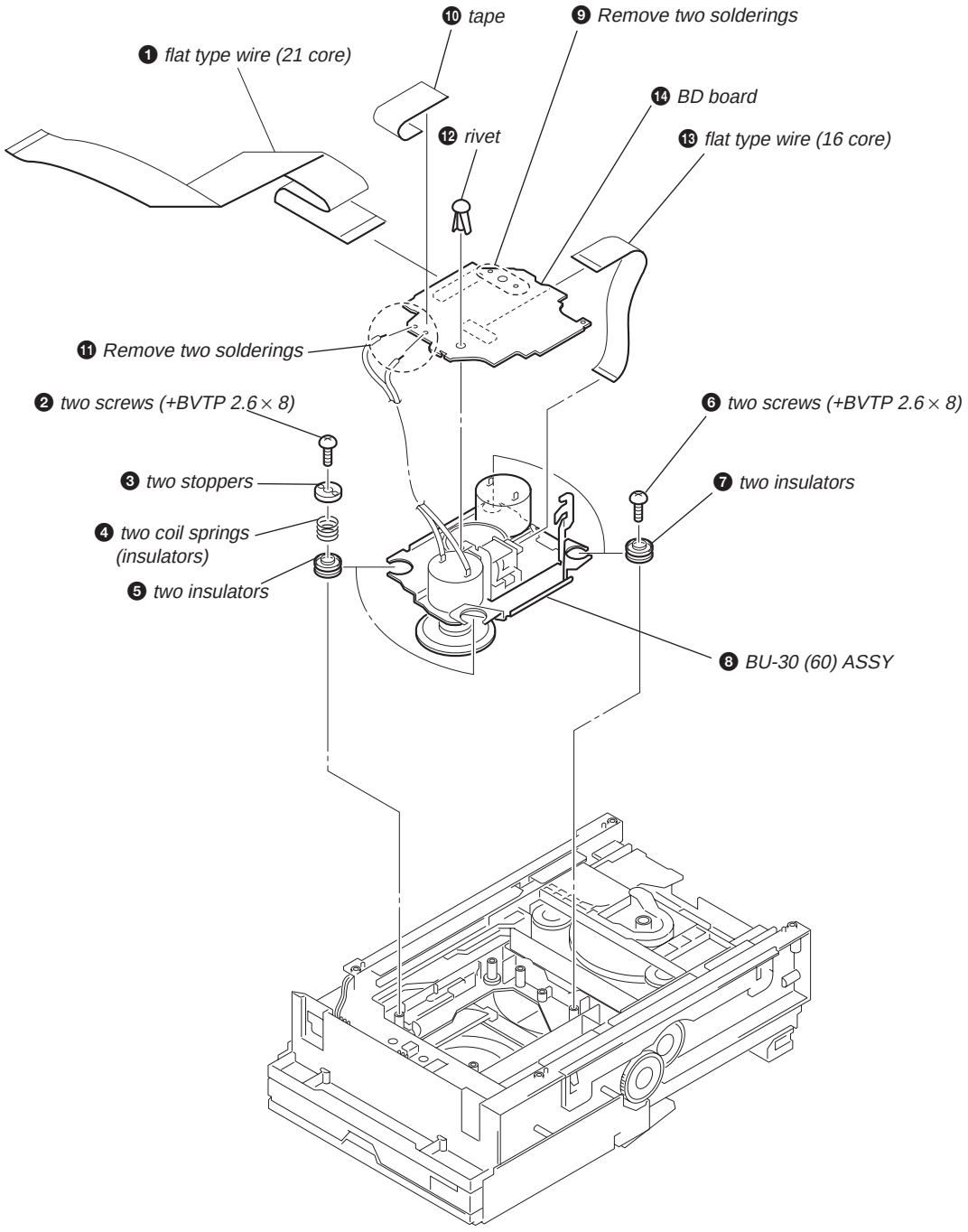

❸ four screws (+BVTT 4 × 8)
❶ connector (CN901)
❹ power transformer
❻ AMP board
❷ connector (CN902)
❼ two screws (+BVTP 3 × 8)
❺ three screws (+BVTP 3 × 8)
❽ cord bushing
❾ SUB POWER board

3-11. CD Mechanism Deck (CDM63E)

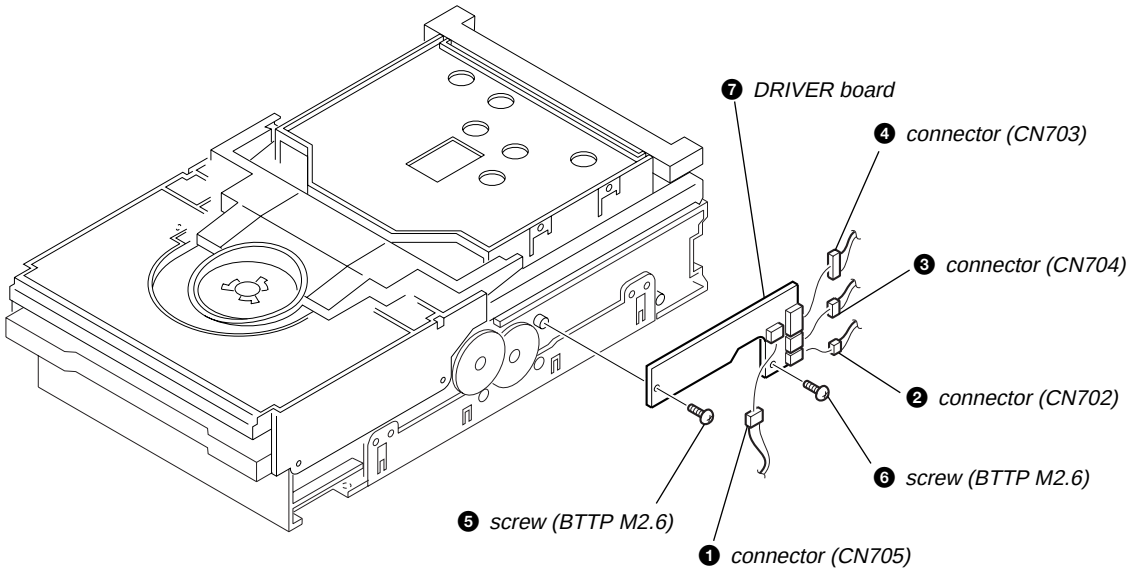


Note: *When installing the CD mechanism, the four bosses must be aligned with the specified positions.*

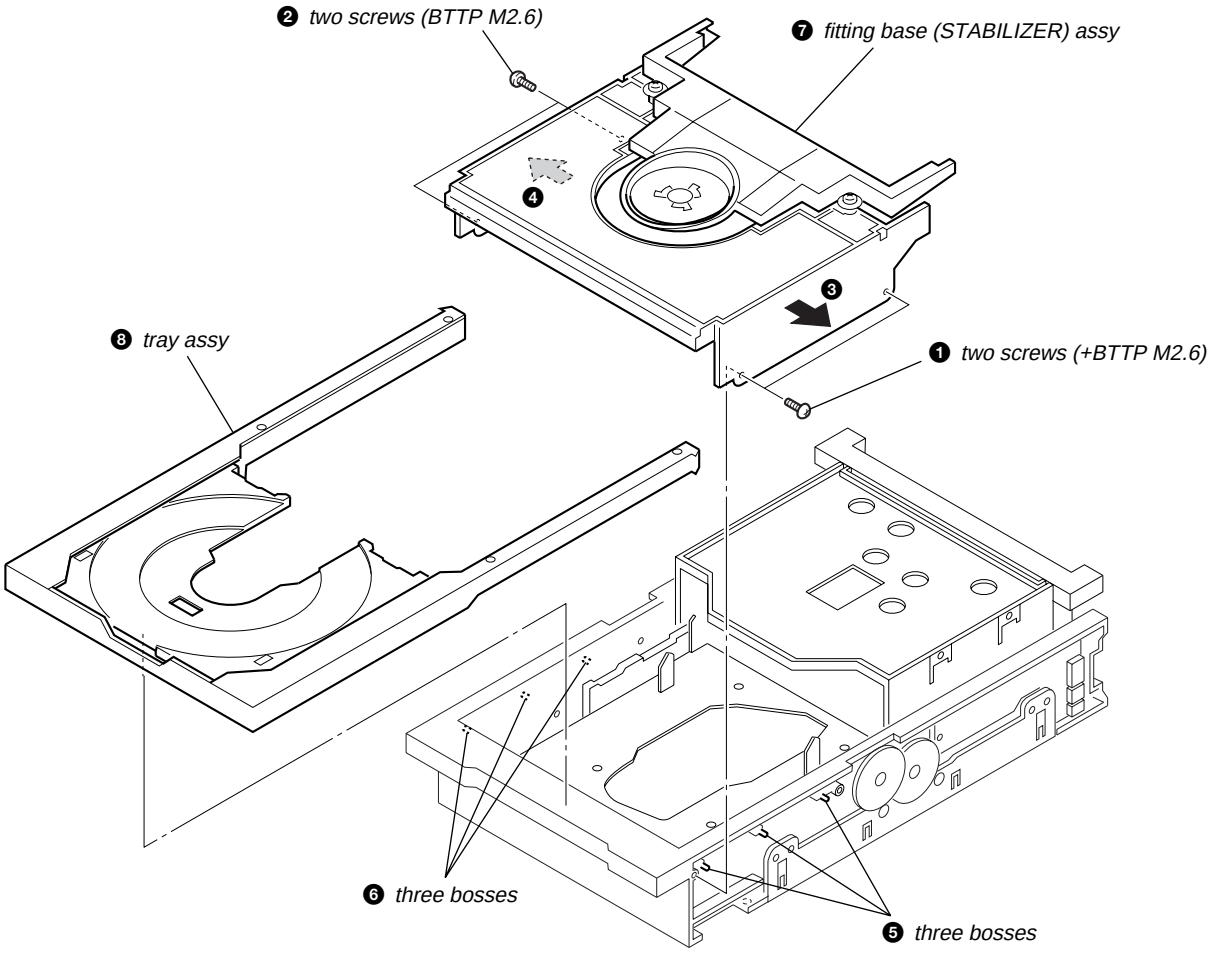
3-12. CD Base Unit (BU-30 (60) Assy)


❶ flat type wire (21 core)
❷ two screws (+BVTP 2.6× 8)
❸ two stoppers
❹ two coil springs (insulators)
❺ two insulators
❻ two screws (+BVTP 2.6× 8)
❼ two insulators
❽ BU-30 (60) ASSY
❾ Remove two solderings
❿ tape
⓫ Remove two solderings
⓬ rivet
⓭ flat type wire (16 core)
⓮ BD board

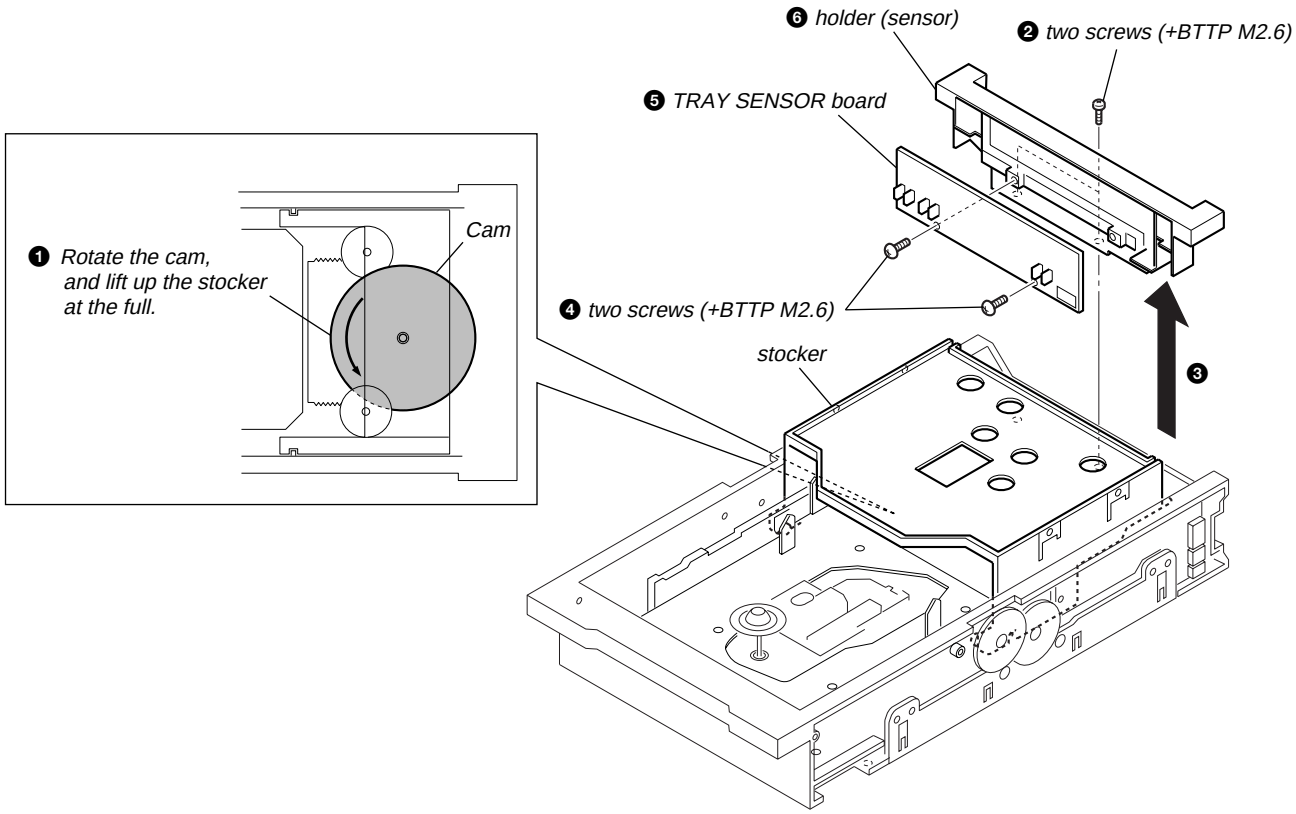
3-13. DRIVER Board



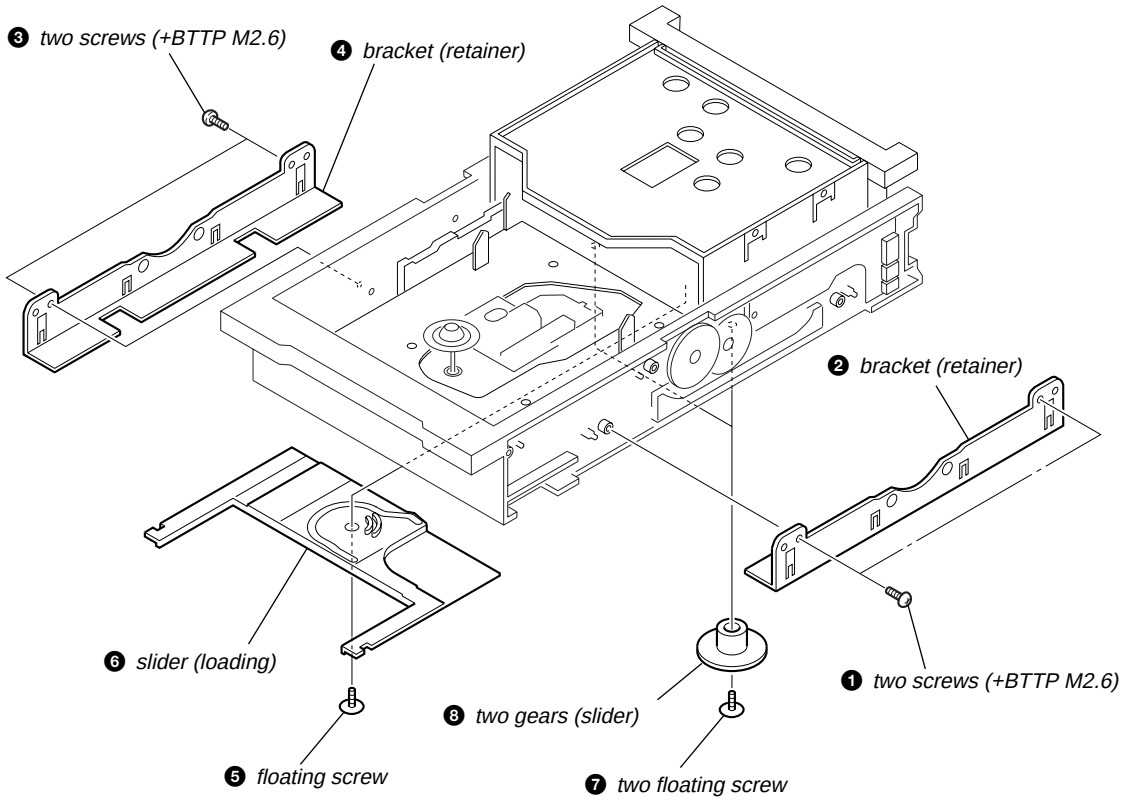
3-14. Fitting Base (Stabilizer) Assy, Tray Assy



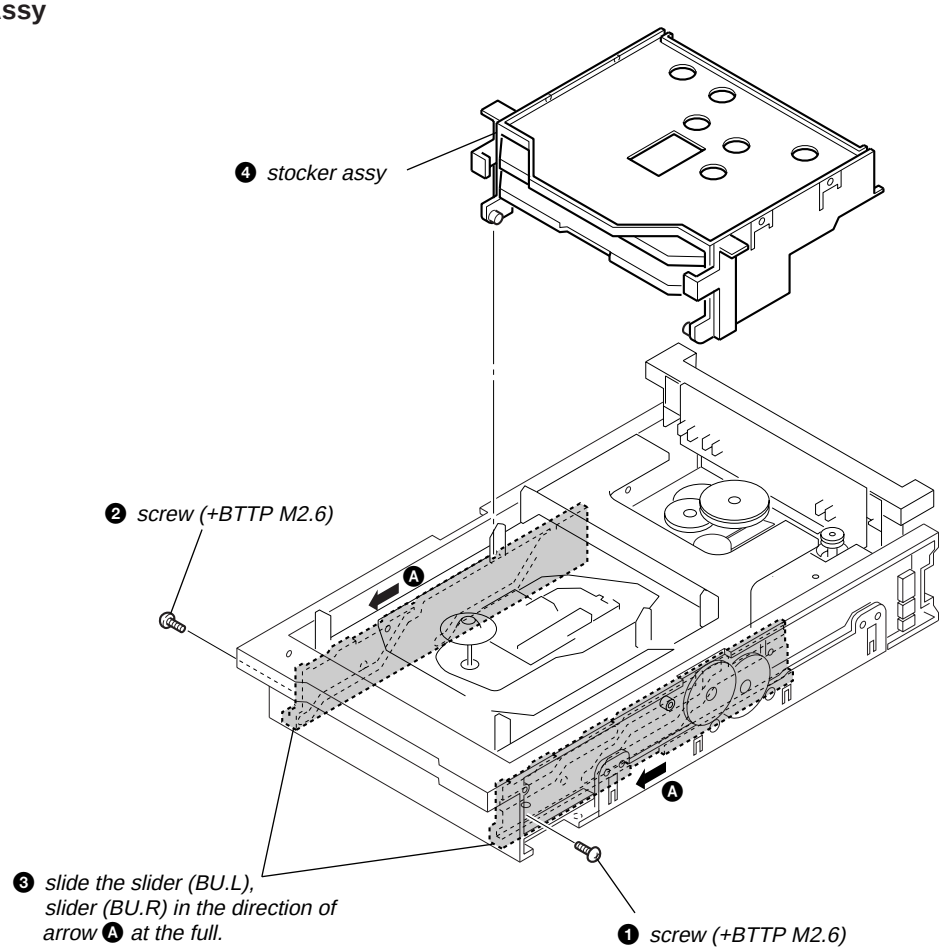
3-15. TRAY SENSOR Board


❻ holder (sensor)
❷ two screws (+BTTP M2.6)
❺ TRAY SENSOR board
Cam
❶ Rotate the cam, and lift up the stocker at the full.
❹ two screws (+BTTP M2.6)
stocker
❸

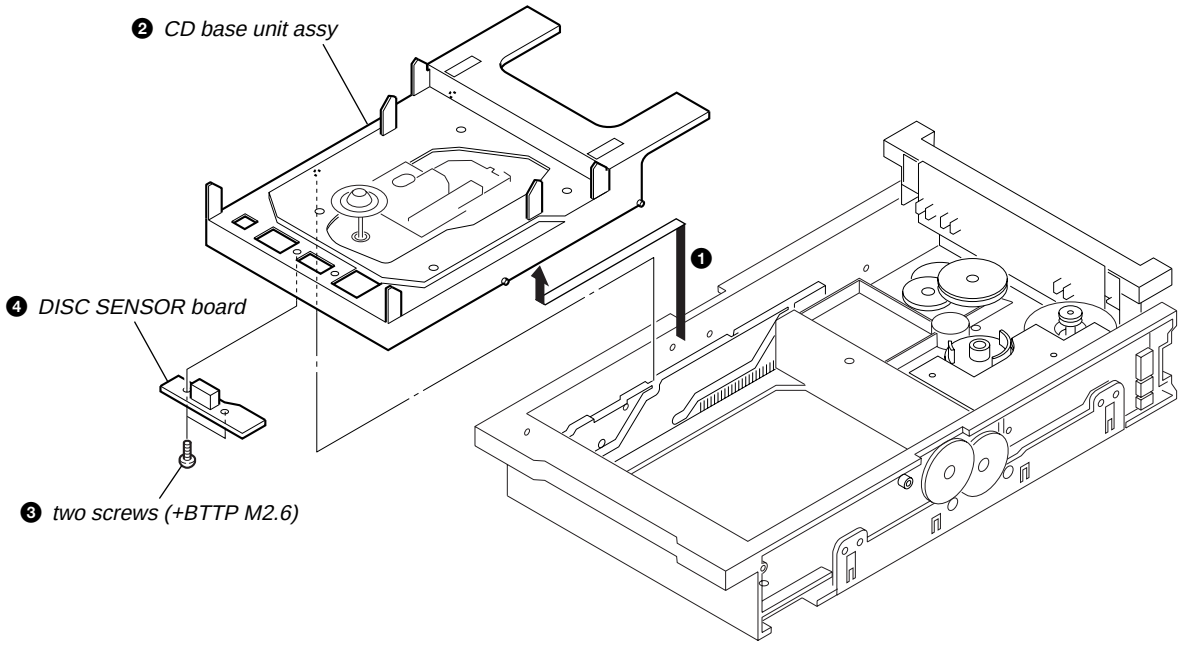
3-16. Slider (Loading), Gear (Slider)



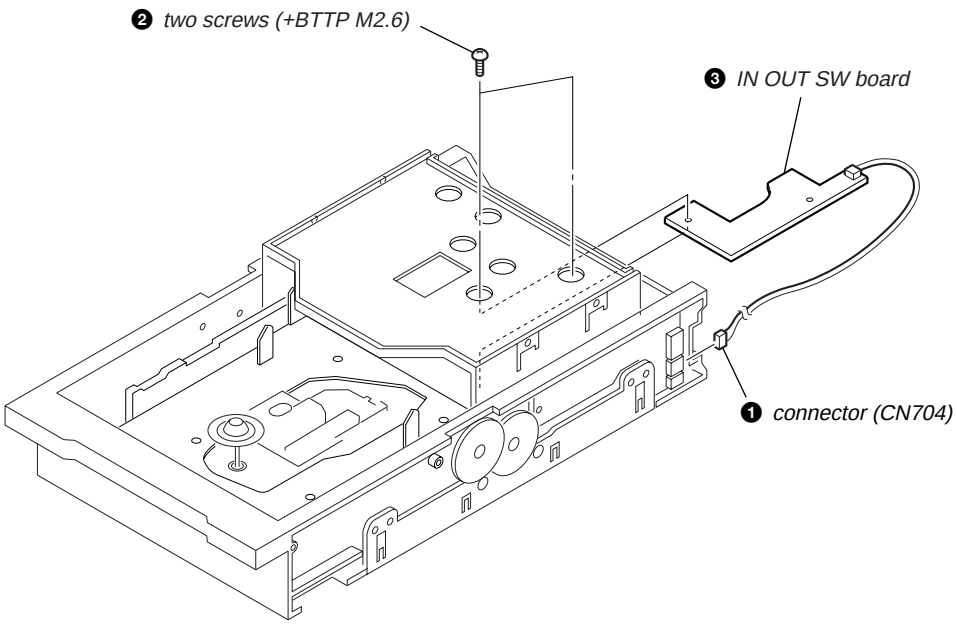
3-17. Stocker Assy



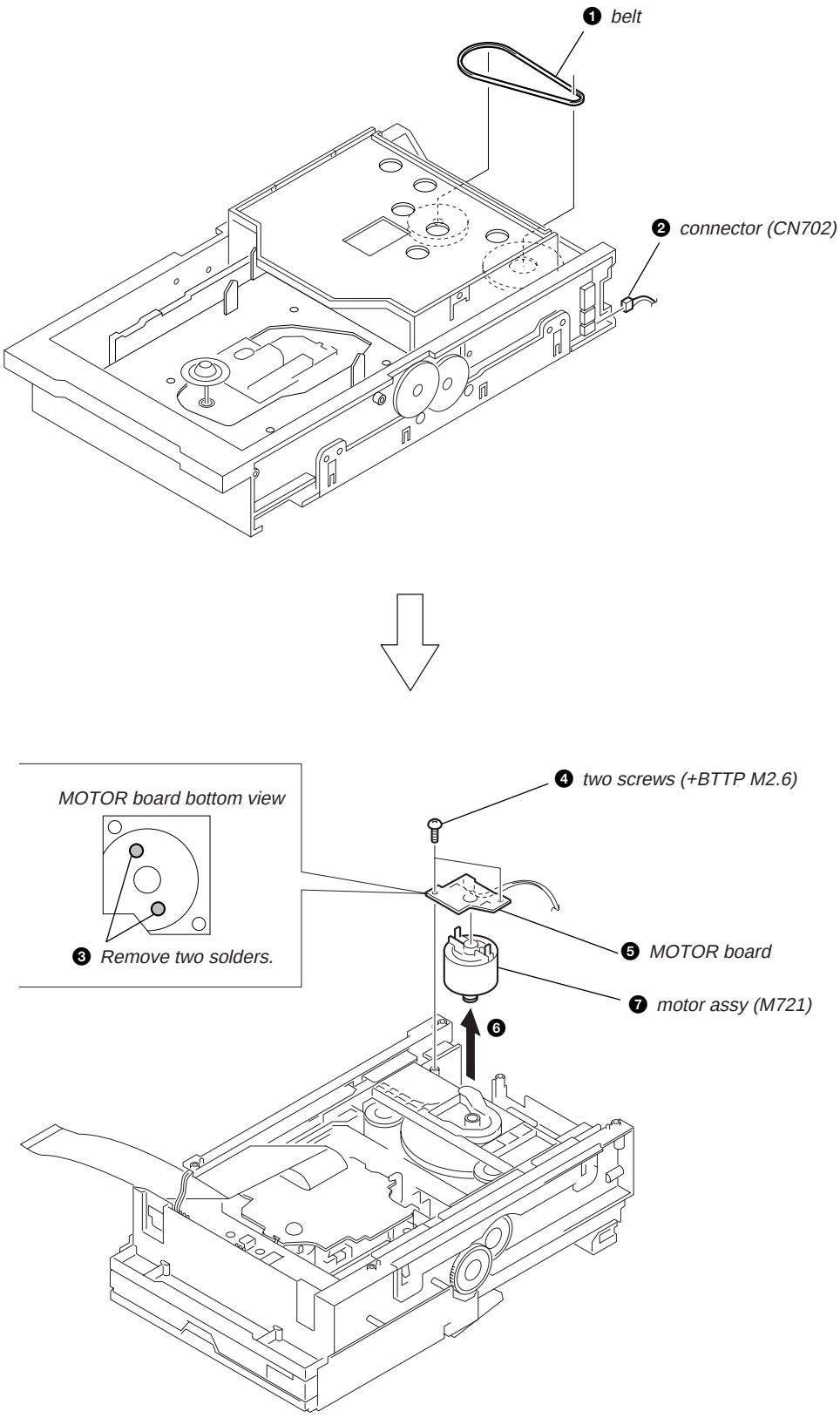
3-18. DISC SENSOR Board



3-19. IN OUT SW Board



3-20. Motor Assy (M721), MOTOR Bard



SECTION 4
TEST MODE

[CD Ship Mode]

• This mode moves the optical pick-up to the position durable to vibration. Use this mode when returning the set to the customer after repair.

Procedure:

1. Press I/⏻ button to turn the set on.
2. Select the function "CD".
3. Press CD 1 button and FUNCTION button simultaneously.
4. After the "STANDBY" display blinks six times, a message "LOCK" is displayed on the liquid crystal display, and the CD ship mode is set.

[GC Test Mode]

• This mode is used to check the software version, LCD, LED and keyboard.

Procedure:

1. Press I/⏻ button to turn the set on.
2. Press three buttons ■, ENTER, and CD 2 simultaneously.
3. LEDs and segments of liquid crystal display are all turned on.
4. When you want to enter the software version display mode, press CD 1. The model number and destination are displayed.
5. Each time CD 1 is pressed, the display changes starting from MC version, GC version, CD version, CDD version, CDMA version, CDMB version, BDA version, BDB version, ST version, TA version, TM version, TC version and MD version in this order. By pressing CD3 the date of the software version is displayed.
6. Press CD 2 button, and the key check mode is activated.
7. In the key check mode, the liquid crystal display displays "K 0 J 0 V 0". Each time a button is pressed, "K 0" value increases. However, once a button is pressed, it is no longer taken into account.
   "V 0" value increases like 1, 2, 3 ... if rotating VOL knob in "+" direction, or it decreases like 0, 9, 8 ... if rotating in "–" direction.
8. To exit from this mode, press three buttons in the same manner as step 2, or disconnect the power cord.

[MC Test Mode]

• This mode is used to check operations of the respective sections of Amplifier, Tuner, CD and Tape.

Procedure:

1. Press the I/⏻ button to turn on the set.
2. Press the three buttons of ■, ENTER and CD 3 simultaneously.
3. "MD" is displayed.
4. Every pressing of EQ EDIT changes the displays in the order of "GEQ MIN"→"GEQ FLAT"→"GEQ MAX"
5. When the VOL control knob is turned clockwise even slightly, the sound volume increases to its maximum and a message "VOL MAX" appears for two seconds, then the display returns to the original display.
6. When the VOL control knob is turned counter-clockwise even slightly, the sound volume decreases to its minimum and a message "VOL MIN" appears for two seconds, then the display returns to the original display.
7. Press the FUNCTION button to the TUNER.
8. By pressing the TUNING MODE button, select the preset tuning.
9. The default-preset channel is selected. (It means that the memory is cleared.)
10. When a tape is inserted in Deck and recording is started, the input source function selects MD automatically.
11. During the recording by tuning ◀◀/▶▶ knob, the Tape (Deck) is selected and tape is rewound. Tape stops at around the record-starting position and playback of the recorded portion of the tape is started.
12. Press I/⏻ button to turn the set off. The cold reset is enforced at the same time.

[CD Service Mode]

• This mode can run the CD sled motor freely. Use this mode, for instance, when cleaning the optical pick-up.

Procedure:

1. Press I/⏻ button to turn the set on.
2. Select the function "CD".
3. Press three buttons ■, FUNCTIO, and CD 2 simultaneously.
4. The CD service mode is selected.
5. With the CD in stop status, turn the ◀◀/▶▶ knob up to move the optical pick-up to outside track, or turn the ◀◀/▶▶ knob counter-up to inside track.
6. To exit from this mode, perform as follows:
   1) Move the optical pick-up to the most inside track.
   2) Press I/⏻ button to turn the set off.

Note: • Always move the optical pick-up to most inside track when exiting from this mode. Otherwise, a disc will not be unloaded.
• Do not run the sled motor excessively, otherwise the gear can be chipped.

[CD Ship (Memory Clear) Mode]

• Set the CD ship mode and set the default setup when shipped from the factory at the next AC power on.

Procedure:

1. Press I/⏻ button to turn the set on.
2. Select the function "CD ".
3. Press three buttons ■, FUNCTION and CD 1 simultaneously.
4. After the "STANDBY" display blinks six times, a message "LOCK" is displayed on the liquid crystal display, and the CD ship mode is set.

[CD Repeat 5 Times Limit Release Mode]

• 5 times limit of repeating CD is released.

Procedure:

1. Press I/⏻ button to turn the set on.
2. Press three buttons ■, FUNCTION and CD 1⏏.
3. The massage "LIMIT OFF" is displayed. 5 times limit of repeating CD is released.
4. Cold reset is performed at power off.

SECTION 5
MECHANICAL ADJUSTMENTS

Precaution

1. Clean the following parts with a denatured alcohol-moistened swab:
   record/playback heads, erase head, capstan, pinch rollers, rubber belts, idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	3.04 – 6.96 mN • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	0.20 – 0.58 mN • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
REV	CQ-102RC	3.04 – 6.96 mN • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	0.20 – 0.58 mN • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	6.97 – 14.02 mN • m (71 to 143 g • cm) (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	0.98 N • m or more (100 g or more) (3.53 oz or more)
REV tension	CQ-403R	0.98 N • m or more (100 g or more) (3.53 oz or more)

SECTION 6
ELECTRICAL ADJUSTMENTS

DECK SECTION **0 dB=0.775V**

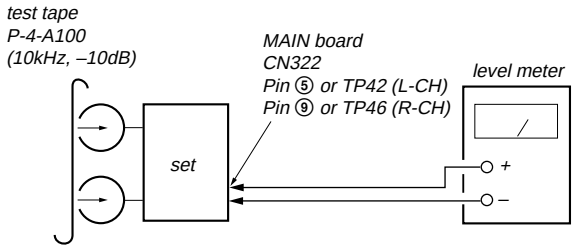
1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

Tape	Signal	Used for
P-4-A100	10 kHz, –10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment

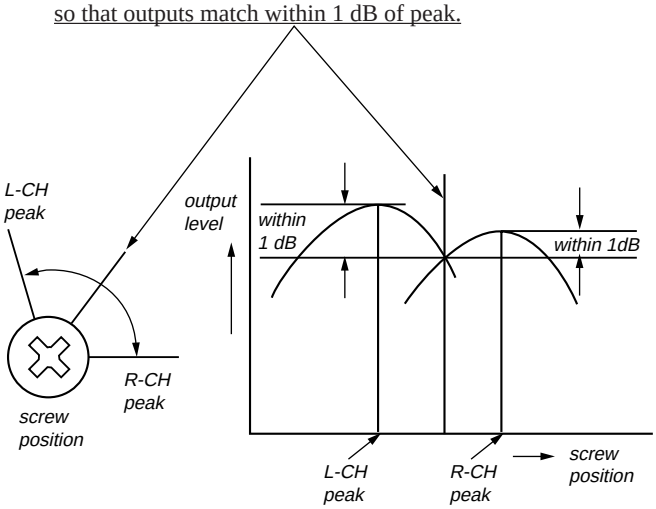
Record/Playback Head Azimuth Adjustment

Procedure:

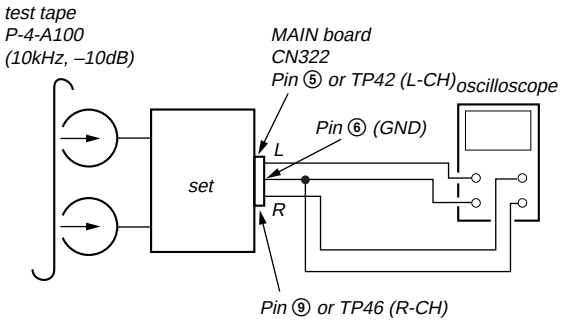
1. Mode : Playback

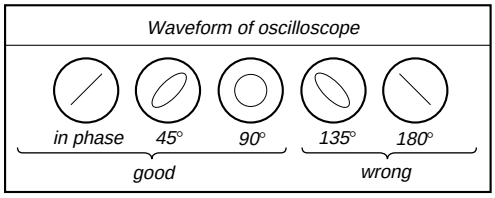


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



3. Mode: Playback





4. After the adjustments, apply suitable locking compound to the parts adjusted.

Adjustment Location: Record/Playback/Erase Head

Tape Speed Check

Note: Set the test mode using the following method and begin tape speed adjustment.

Procedure:
With the power turned on, press the ■ button, ENTER button, and CD 3 button simultaneously.
(The message "MD" is displayed while in the test mode.)
To exit the test mode, press the I/⏻ button.

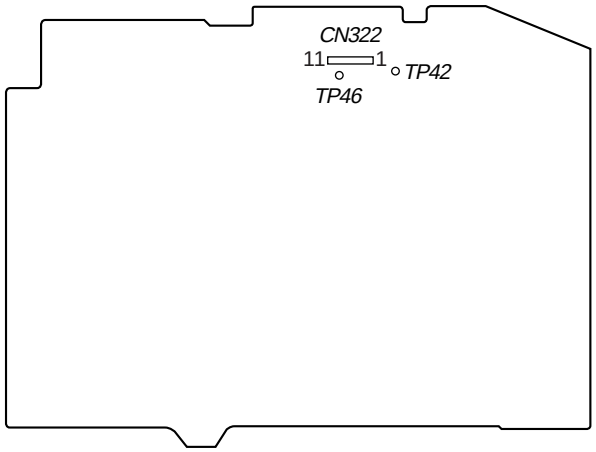
1. Insert the WS-48B into deck.
2. Press the ◀▶ button of deck.
3. Check the reading of frequency counter becomes 3000 ± 90 Hz.

Sample Value of Wow and flutter

W.RMS (JIS) less than 0.3%
(test tape: WS-48B)

Adjustment Location:

[MAIN BOARD]

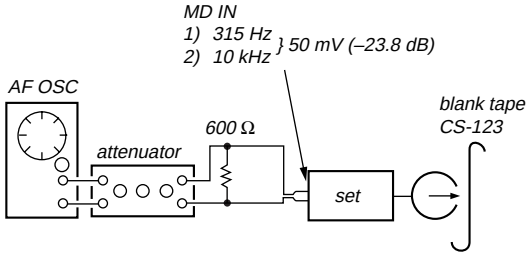


Record Bias Adjustment

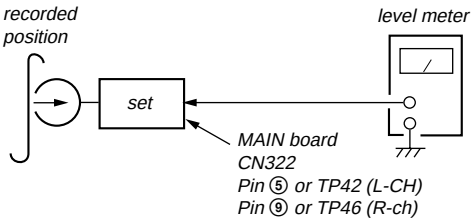
Procedure:

INTRODUCTION
When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the "REC memory mode" which rewinds only the recorded portion and playback is set.
This "REC memory mode" is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to MD.
(After recording, turn the ◀◀/▶▶ knob without stopping will return to the position where recording was started.)

1. Press FUNCTION button to select MD. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck, press the REC PAUSE/START button, and then press the ◀▶ button to start recording.
3. Mode: Record



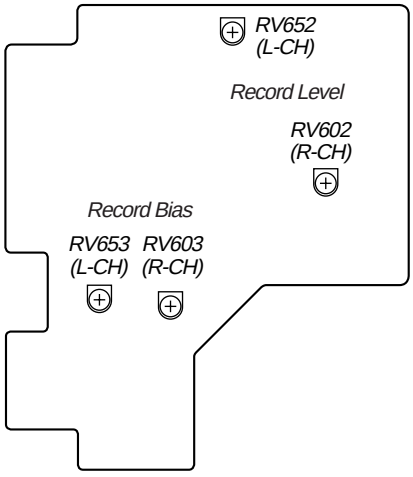
4. Mode: Playback



5. Confirm playback the signal recorded in step 2 become adjustment level as follows.
If these levels do not adjustment level, adjust the RV653 (L-CH) and RV603 (R-CH) on the TC board to repeat steps 3 and 4.

Adjustment level: The playback output of 10 kHz level difference against 315 Hz reference should be 0 ± 0.5 dB.

[TC BOARD]

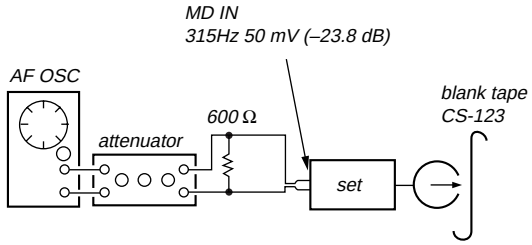


Record Level Adjustment

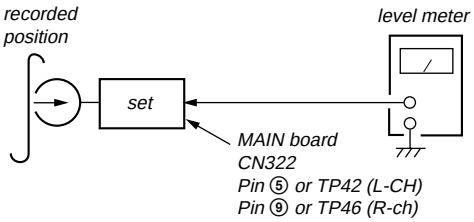
Procedure:

INTRODUCTION
When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the "REC memory mode" which rewinds only the recorded portion and playback is set.
This "REC memory mode" is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to MD.
(After recording, turn the ◀◀/▶▶ knob without stopping will return to the position where recording was started.)

1. Press FUNCTION button to select MD. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck, press the REC PAUSE/START button, and then press the ◀▶ button to start recording.
3. Mode: Record



4. Mode: Playback



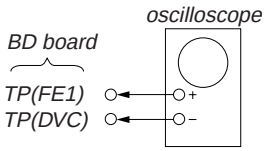
5. Confirm playback the signal recorded in step 2 become adjustment level as follows.
   If these levels do not satisfy adjustment level, adjust the RV652 (L-CH) and RV602 (R-CH) on the TC board to repeat steps 3 and 4.

Adjustment level:
CN322 playback level: 47.2 to 53.0 mV (–24.3 to –23.3 dB)

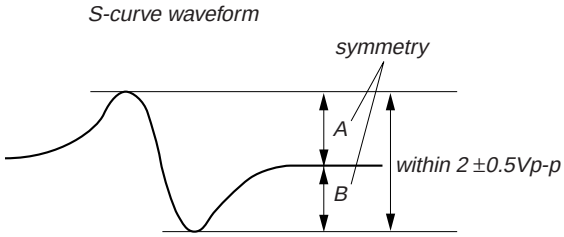
CD SECTION

Note :
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-Curve Check



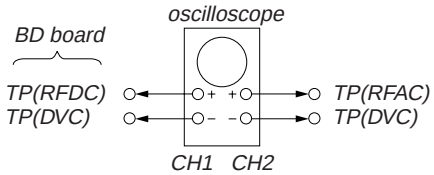
Procedure :
1. Connect an oscilloscope to TP (FE1).
2. Connect between IC103 Pin ⑰ TP (FEI) and TP (DVC) (1.65 V) by lead wire.
3. Turn the power on.
4. Load a disc (YEDS-18) and actuate the focus search. (In consequence of open and close the disc tray, actuate the focus search)
5. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2 ± 0.5 Vp-p.



6. After check, remove the lead wire connected in step 2.

Note :
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

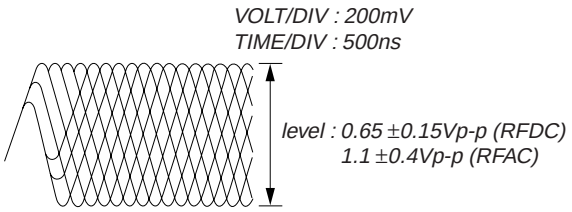
RF Level Check



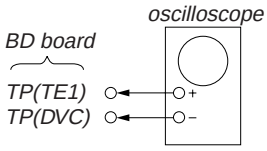
Procedure :
1. Connect an oscilloscope CH1 to TP (RFDC) and CH2 to TP (RFAC).
2. Turn Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Confirm that oscilloscope waveform is clear and check if RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape " ‡ " can be clearly distinguished at the center of the waveform.

RF signal waveform



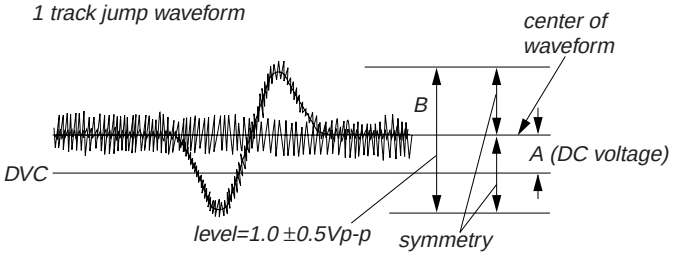
E-F Balance (1 Track jump) Check



Procedure :

1. Connect an oscilloscope to TP (TE1) and TP (DVC).
2. Turn the power on.
3. Load a disc (YEDS-18) and playback the number nine track.
4. Press the ▶II button. (Becomes the 1 track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.

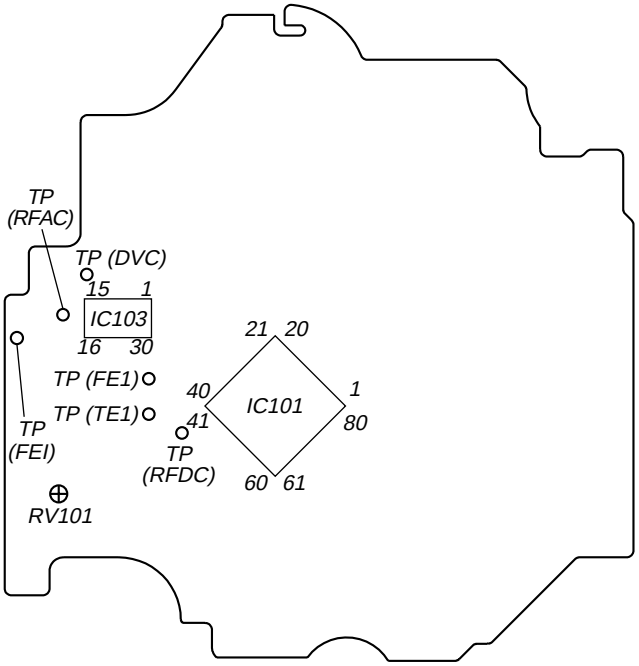
1 track jump waveform



6. Adjust RV101 on the BD board so that the center of waveform becomes the same voltage of DVC. (i.e. A=0V)

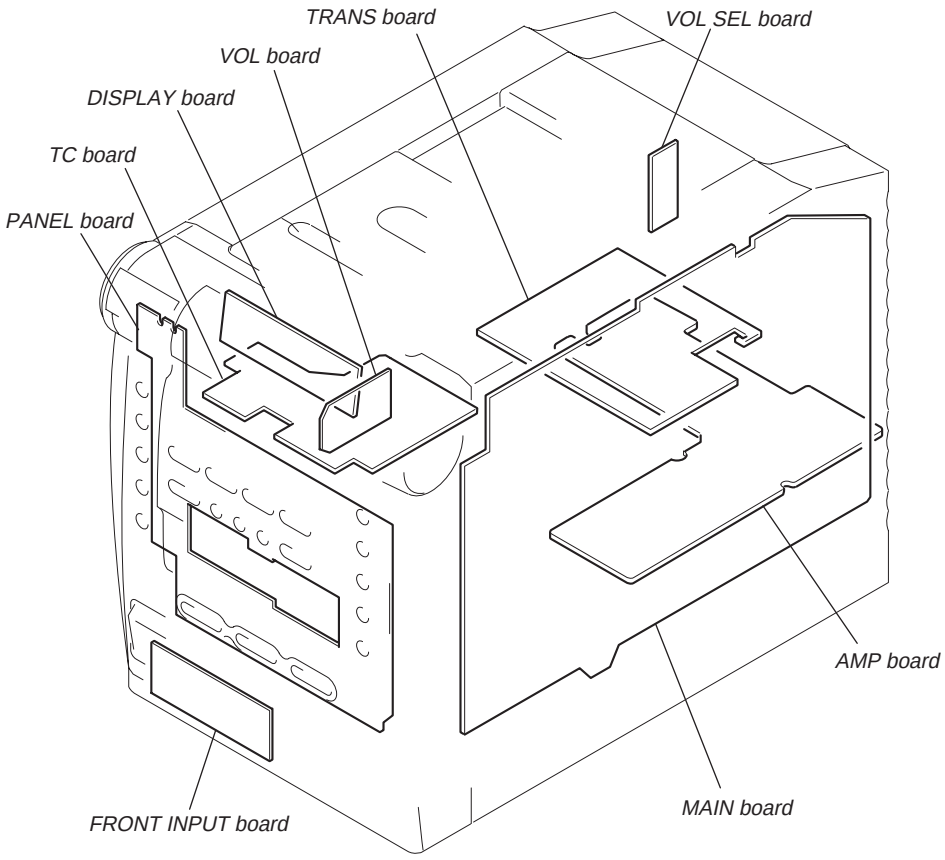
Adjustment Location:

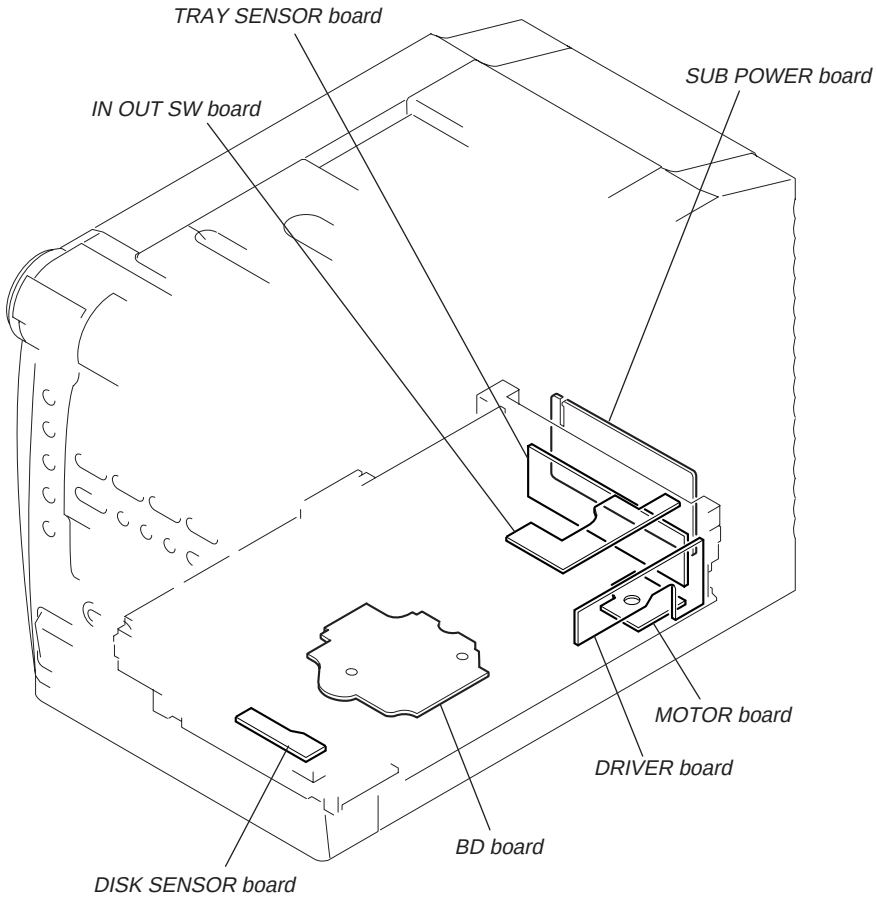
[BD BOARD] (Conductor Side)



SECTION 7
DIAGRAMS

7-1. Circuit Boards Location





THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

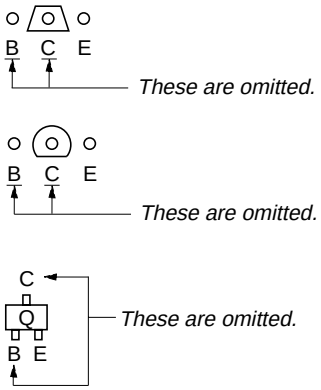
- : B+ Line.
- : B– Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- ✻ : Impossible to measure
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - : FM
  - : PB
  - : REC
  - : CD (Analog)
  - : CD (Digital)
- Abbreviation
  MX : Mexican model
  KR : Korea model

For printed wiring boards.

Note:

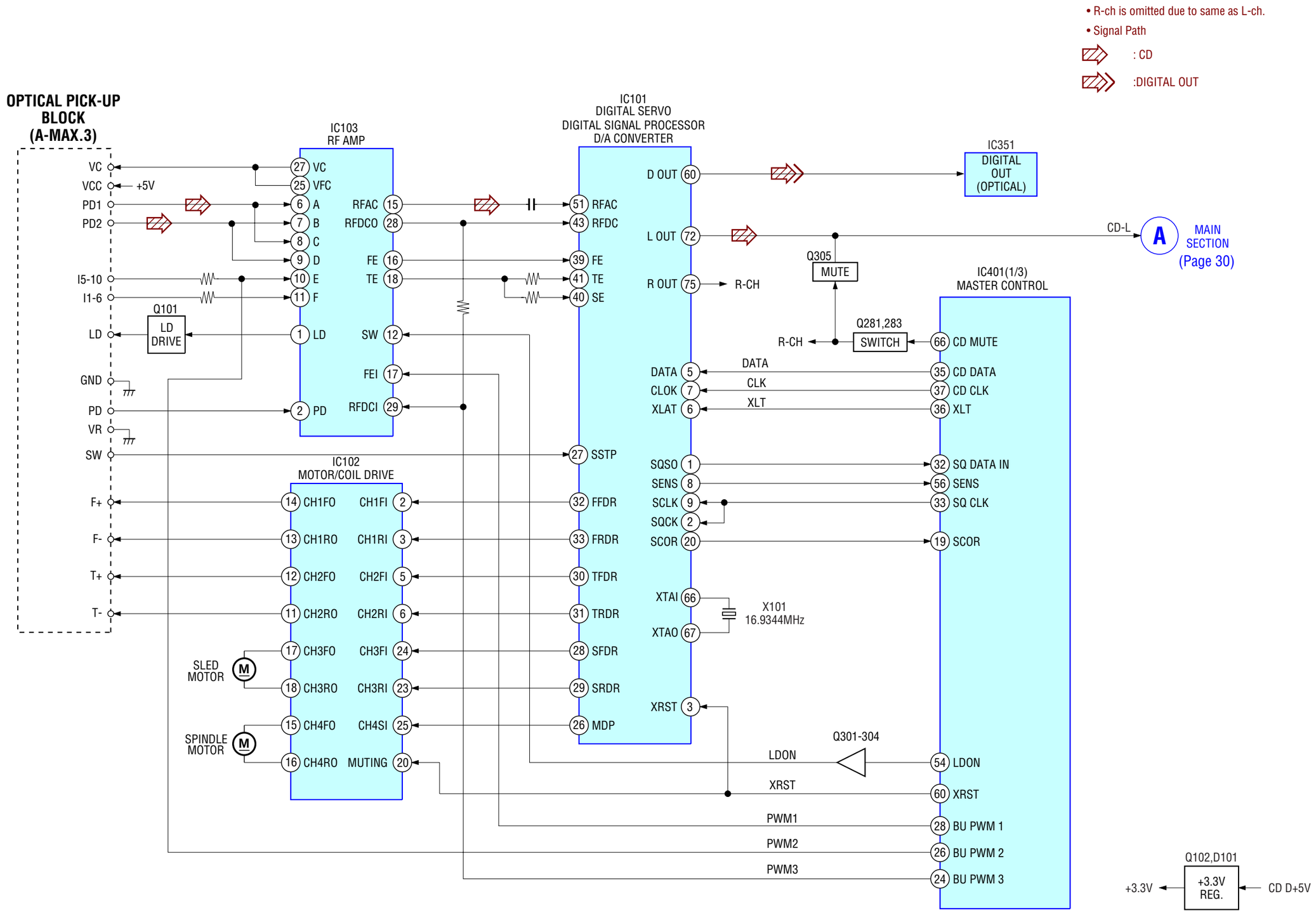
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ○ : Through hole.
- : Pattern from the side which enables seeing.

- **Indication of transistor**



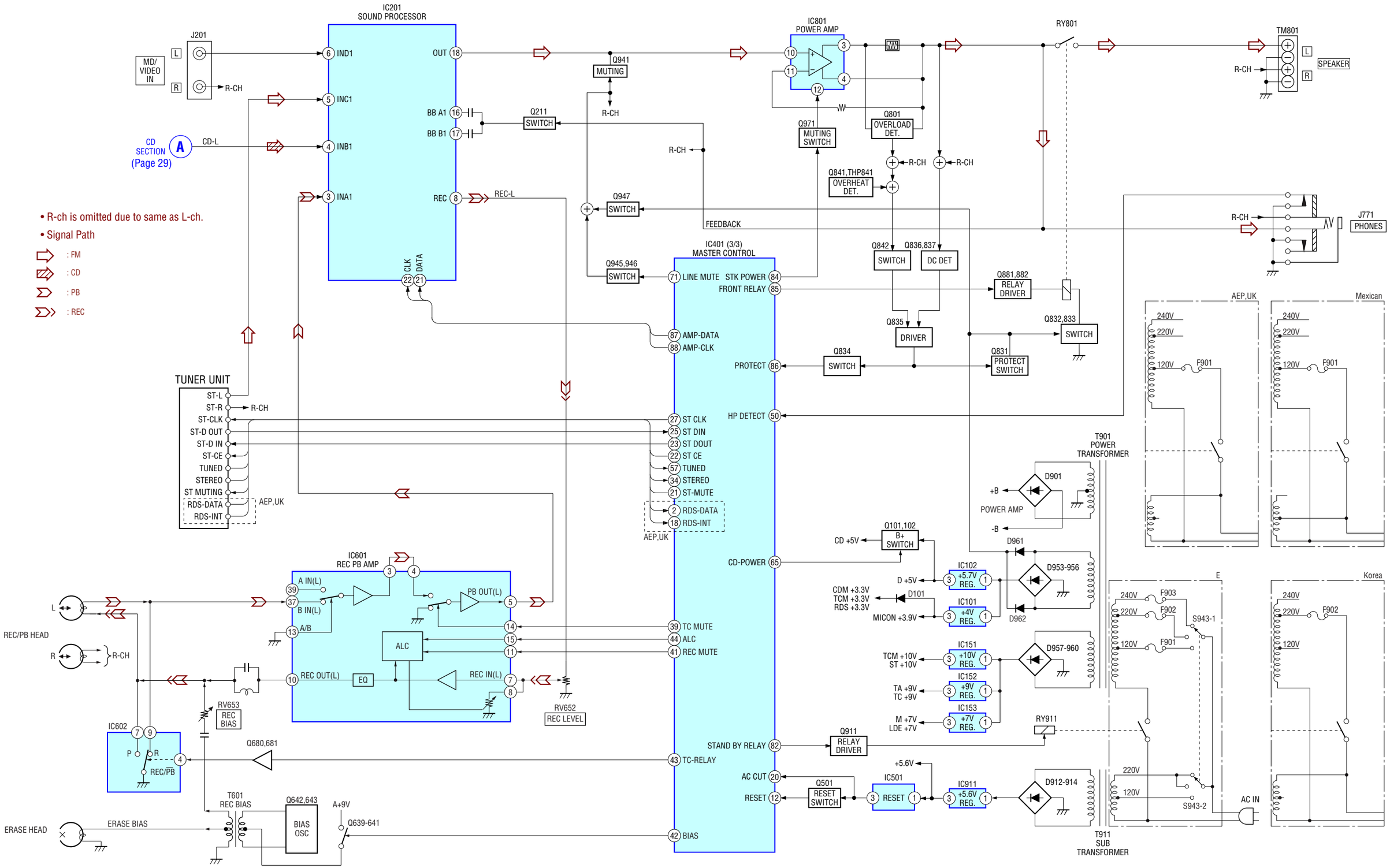
7-2. Block Diagrams

CD Section

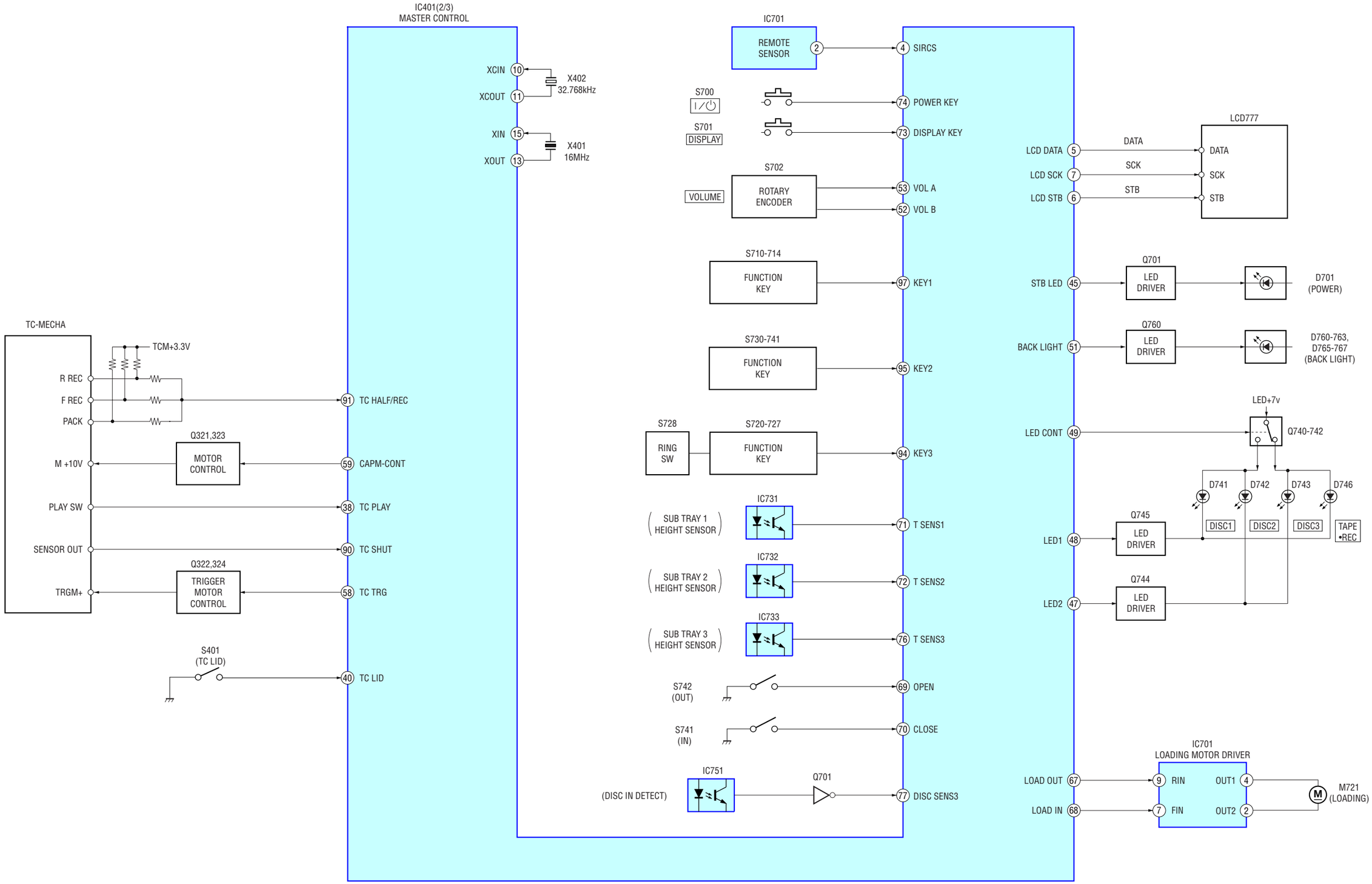


HCD-TB20

MAIN Section

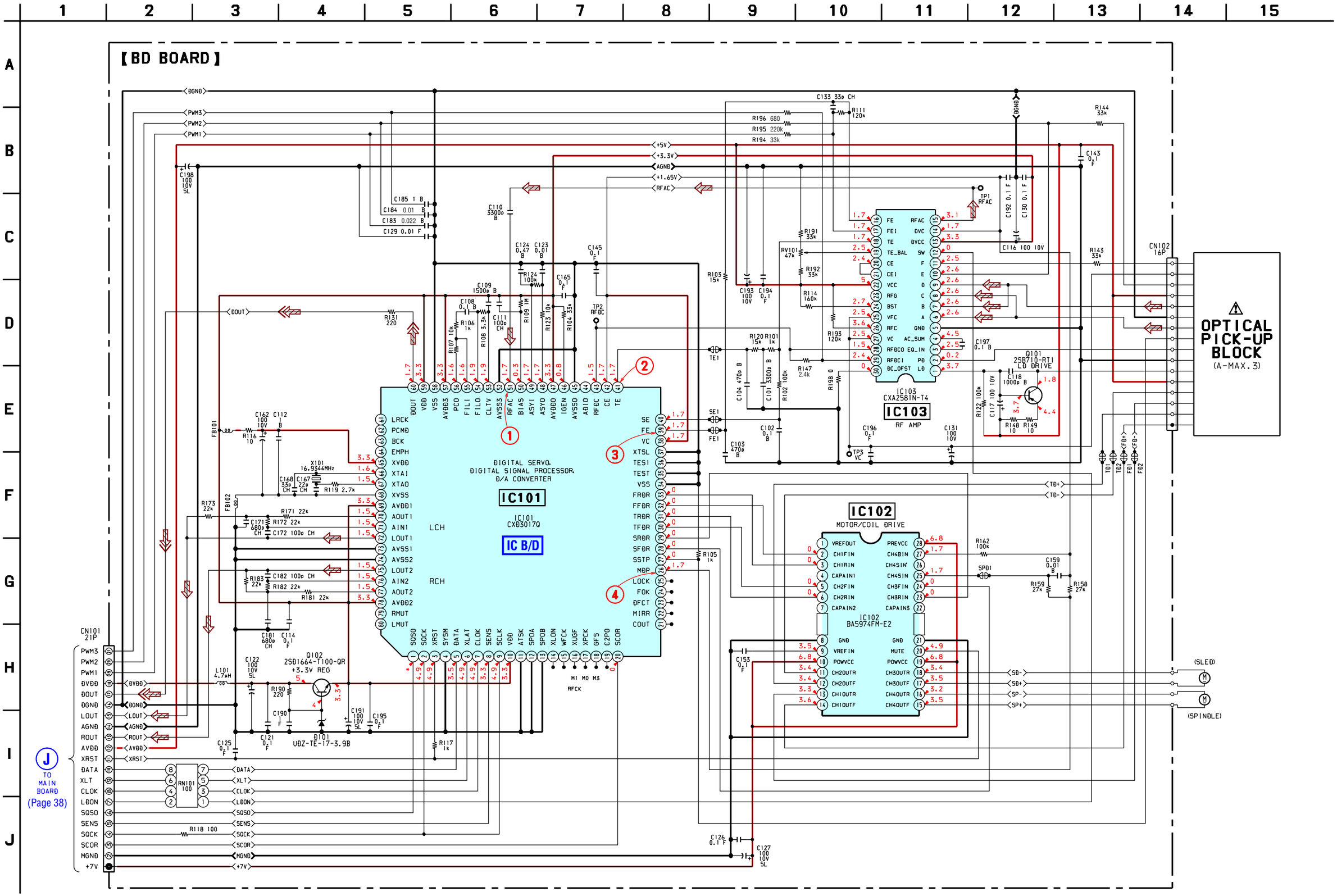


SYSTEM CONTROL Section

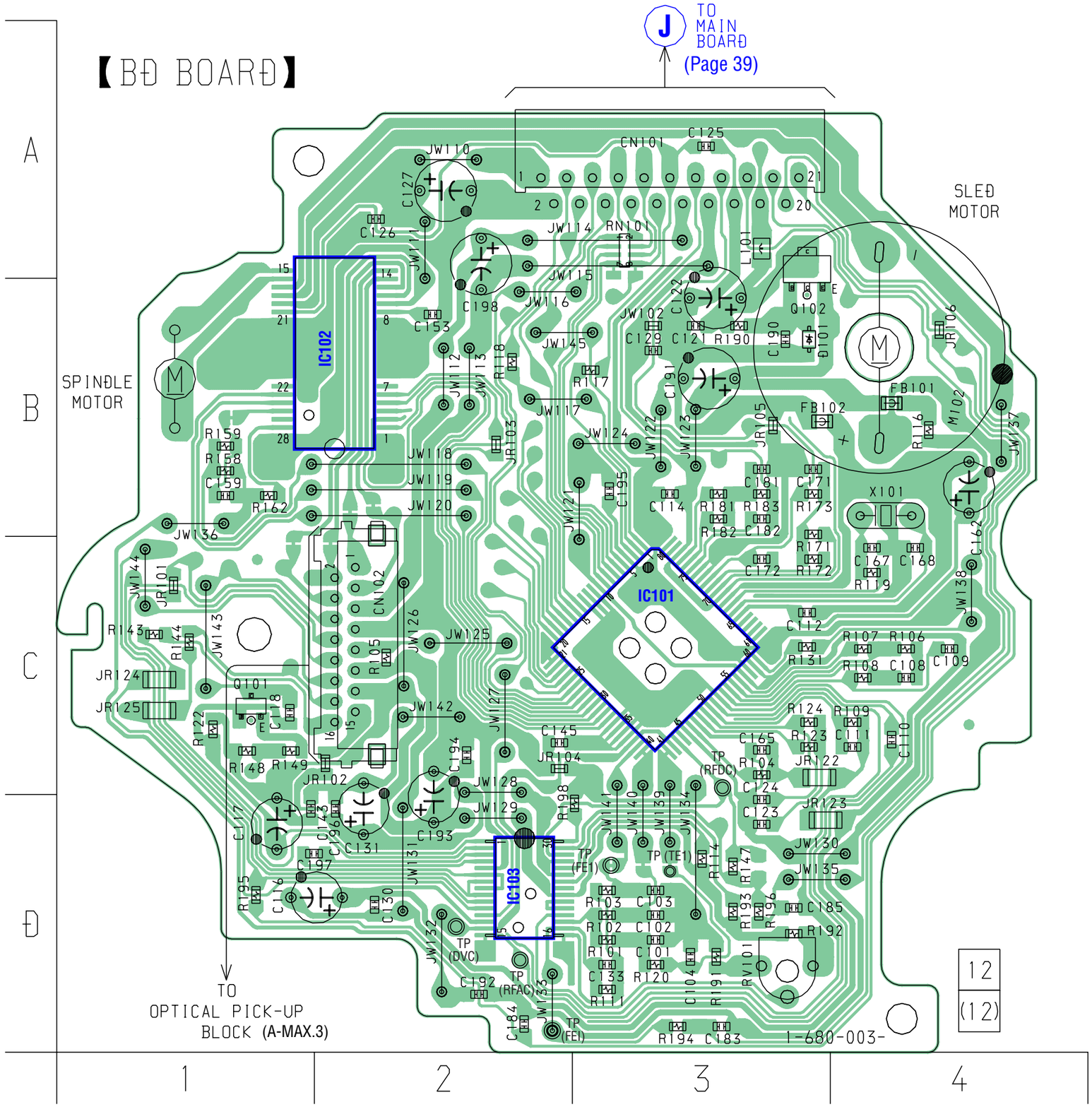


7-3. Schematic Diagram BD Section

• See page 50 for Waveforms. • See page 52 for IC Block Diagram.



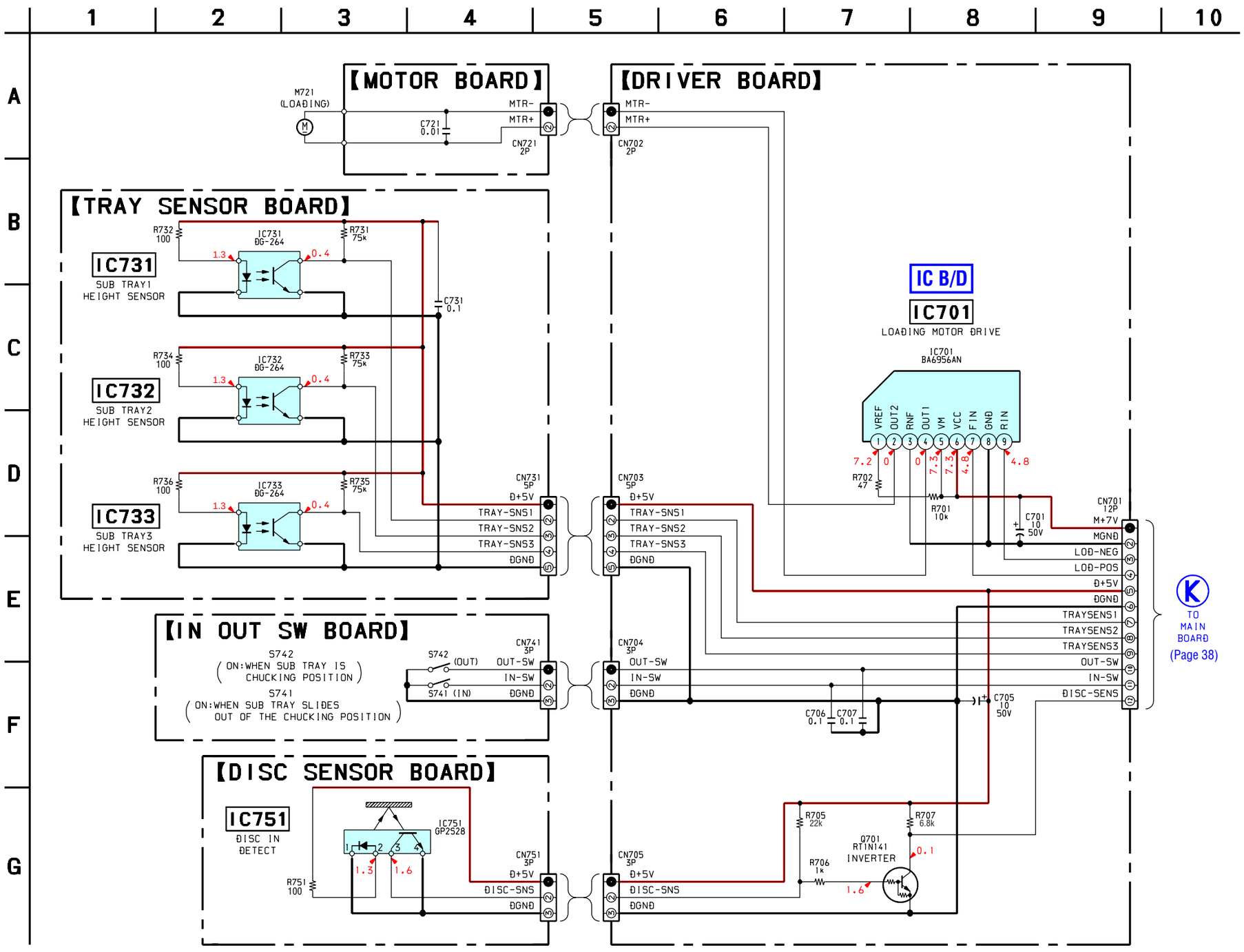
7-4. Printed Wiring Board BD Section • See page 27 for Circuit Boards Location.



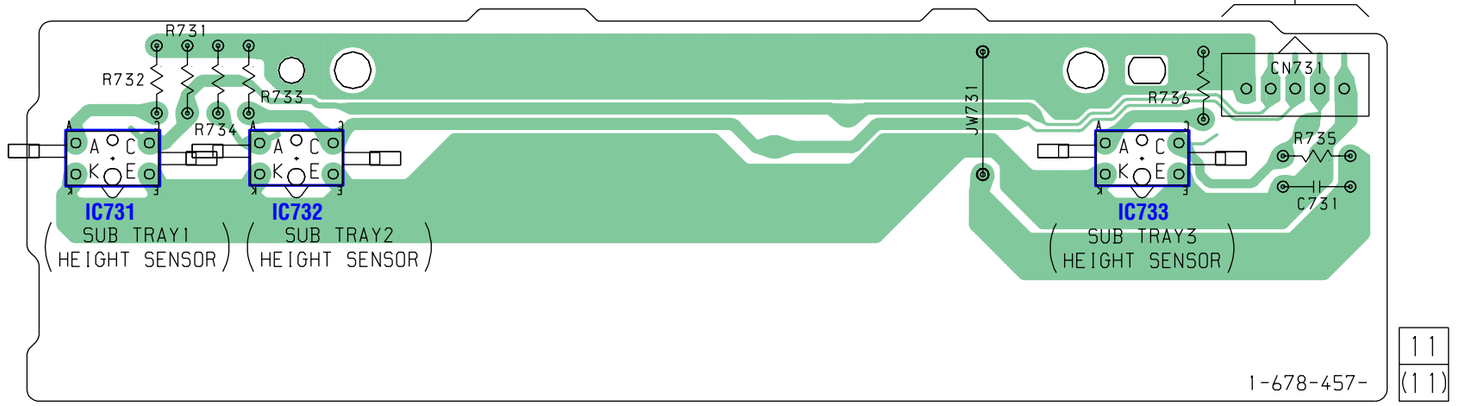
• **Semiconductor Location**

Ref. No.	Location
D101	B-3
IC101	C-3
IC102	B-2
IC103	D-2
Q101	C-1
Q102	A-3

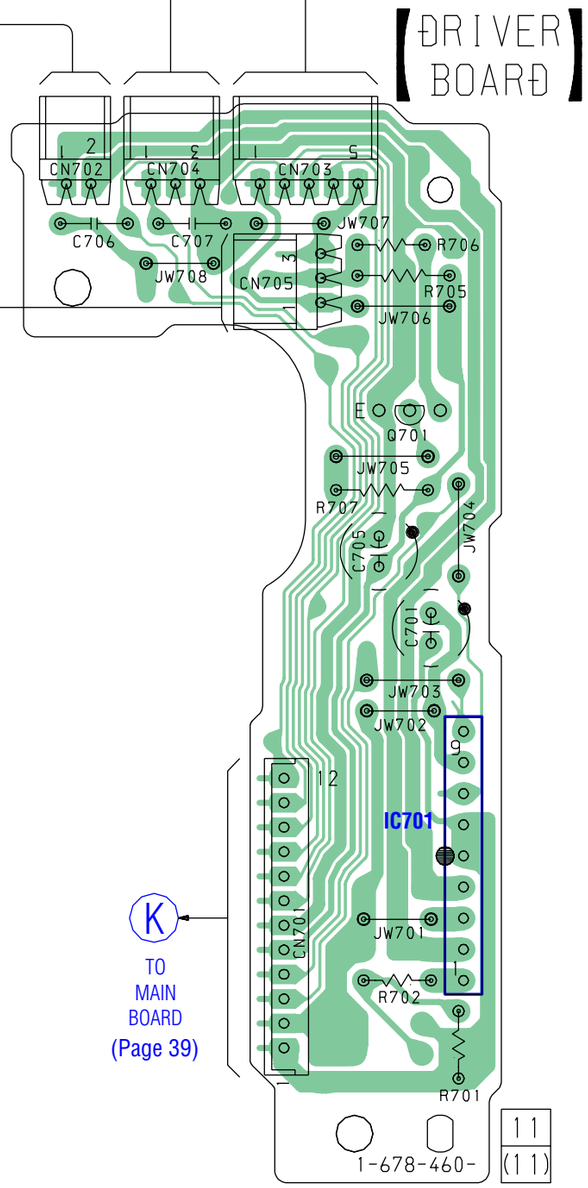
7-5. Schematic Diagram DRIVER Section • See page 53 for IC Block Diagram.



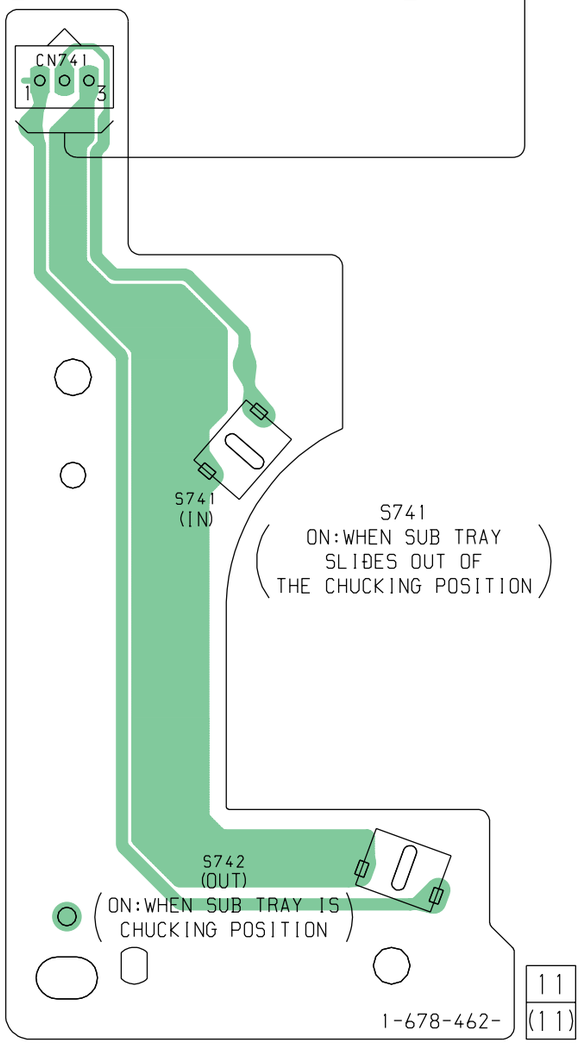
【TRAY SENSOR BOARD】



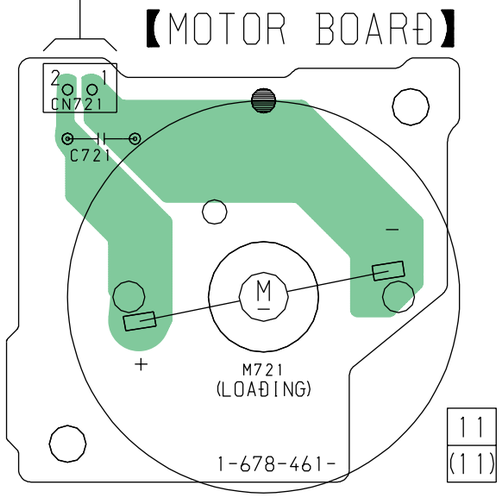
【DRIVER BOARD】



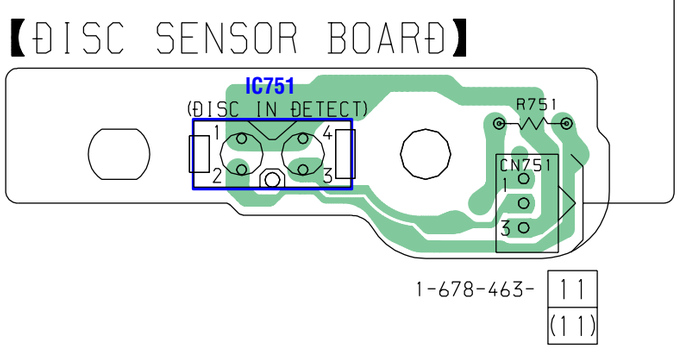
【IN OUT SW BOARD】



【MOTOR BOARD】



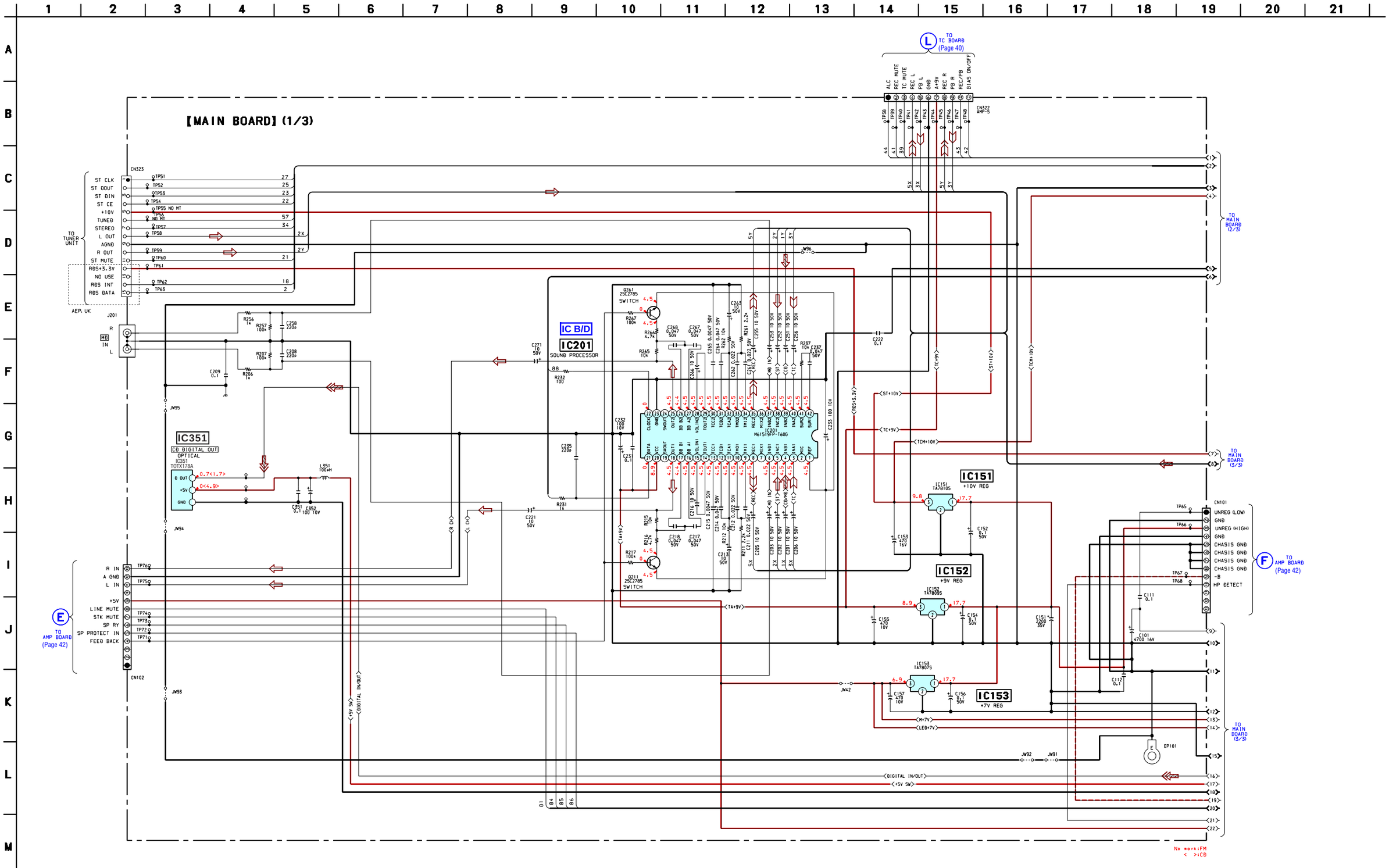
【DISC SENSOR BOARD】



TO MAIN BOARD (Page 39)

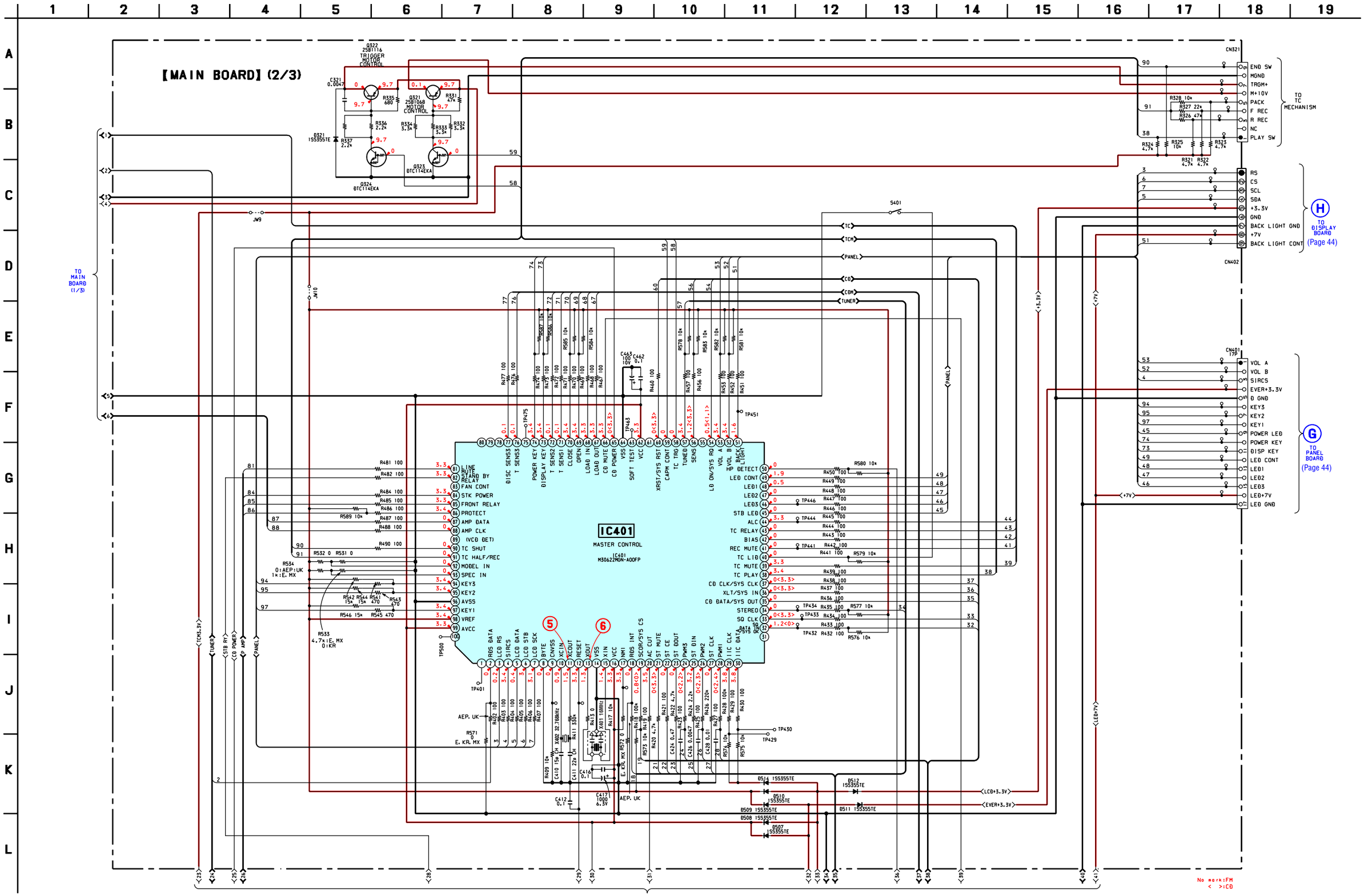
7-7. Schematic Diagram MAIN Section (1/3)

• See page 53 for IC Block Diagram.

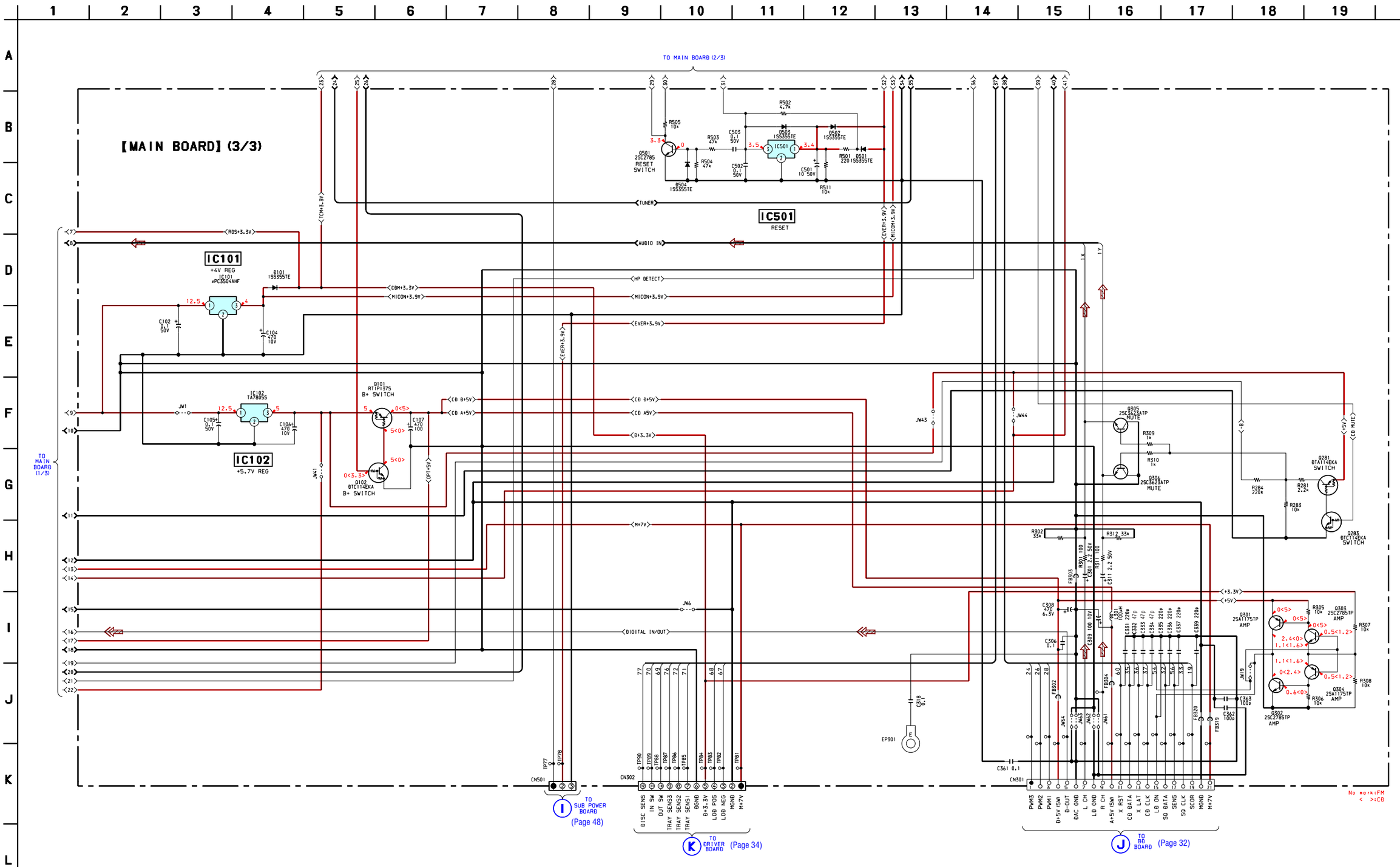


7-8. Schematic Diagram MAIN Section (2/3)

• See page 50 for Waveforms. • See page 50 for IC Pin Function Description.

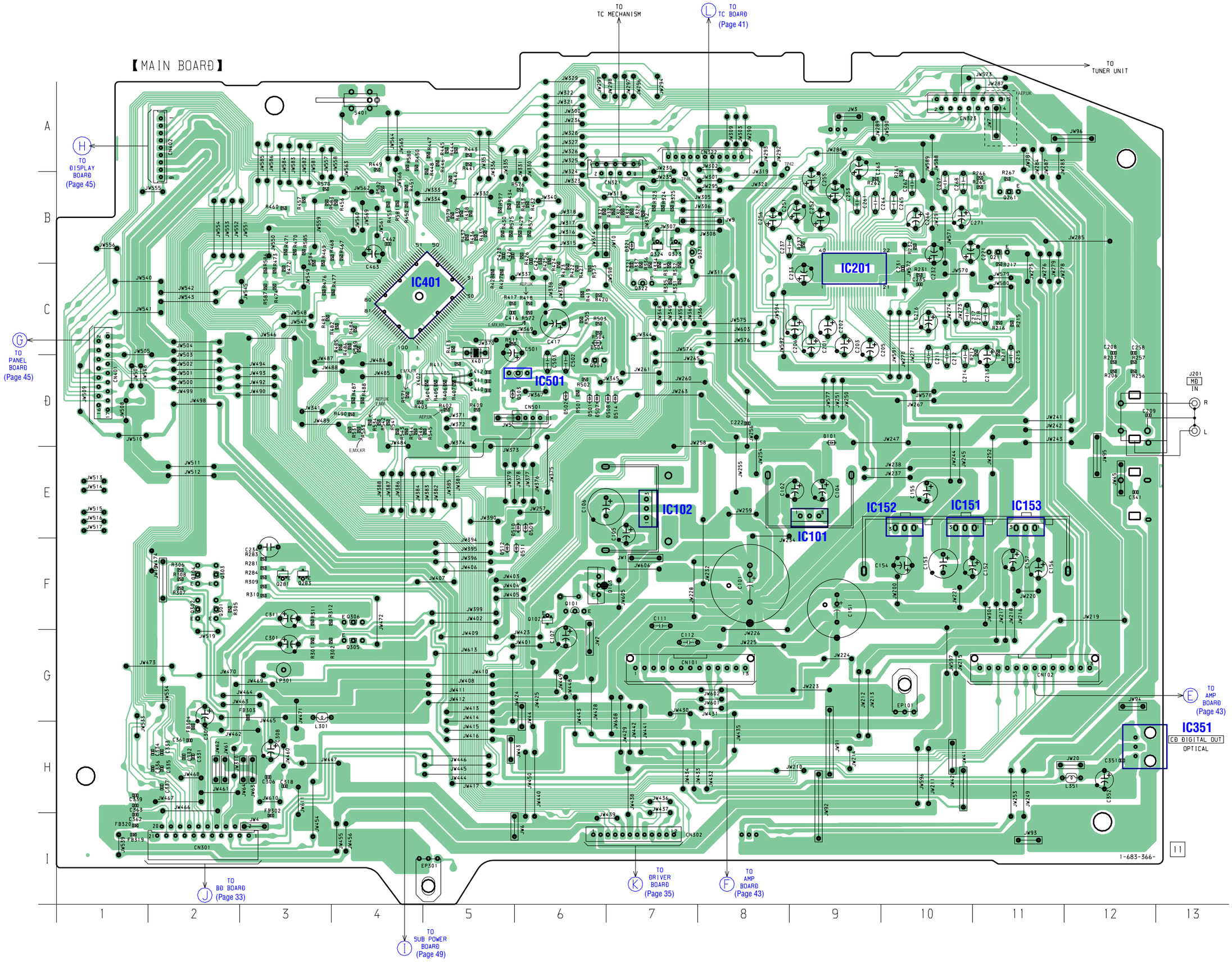


7-9. Schematic Diagram MAIN Section (3/3)



7-10. Printed Wiring Board MAIN Section

• See page 27 for Circuit Boards Location.

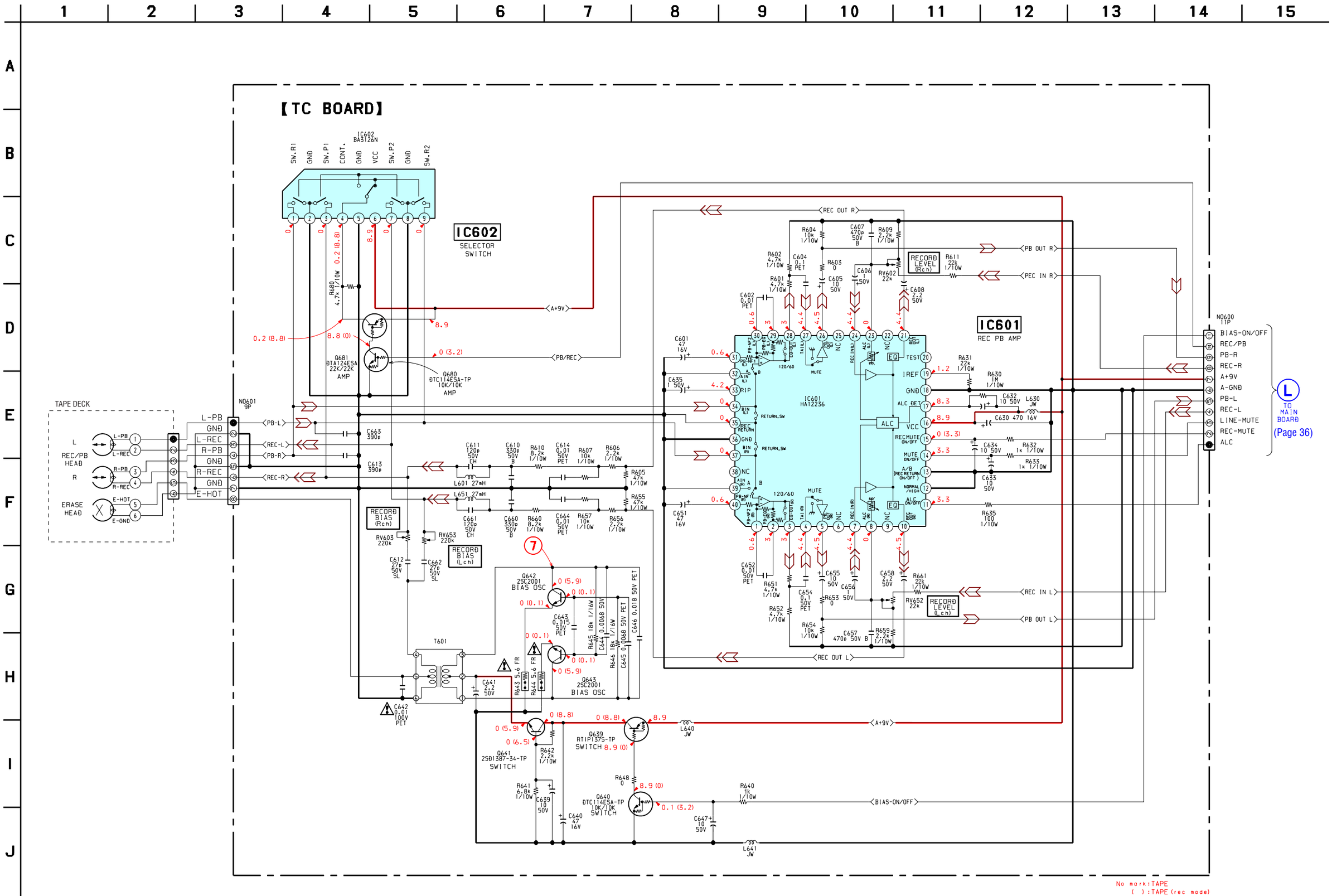


• **Semiconductor Location**

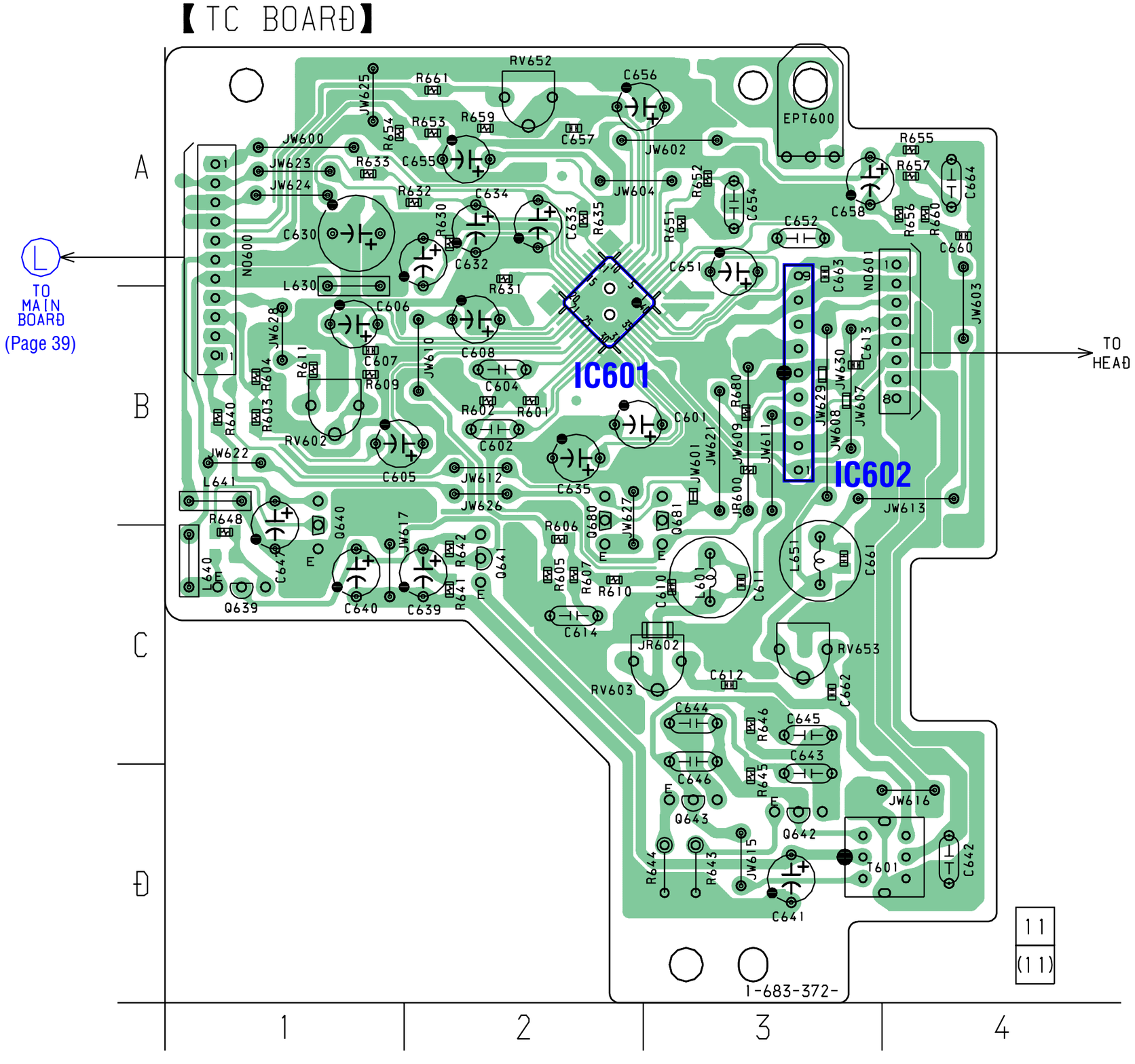
Ref. No.	Location
D101	D-9
D321	B-7
D501	D-6
D502	D-6
D503	D-6
D504	C-6
D507	D-6
D508	D-7
D509	E-6
D510	E-6
D511	F-6
D512	F-5
D514	D-7
IC101	E-9
IC102	E-7
IC151	E-10
IC152	E-10
IC153	E-11
IC201	C-9
IC351	H-12
IC401	C-5
IC501	D-6
Q101	F-6
Q102	F-6
Q211	B-11
Q261	B-11
Q281	F-3
Q283	F-3
Q301	F-2
Q302	F-2
Q303	F-2
Q304	F-2
Q305	G-4
Q306	F-4
Q321	B-7
Q322	C-7
Q323	B-7
Q324	B-7
Q501	D-6

7-11. Schematic Diagram DECK Section

• See page 50 for Waveforms.



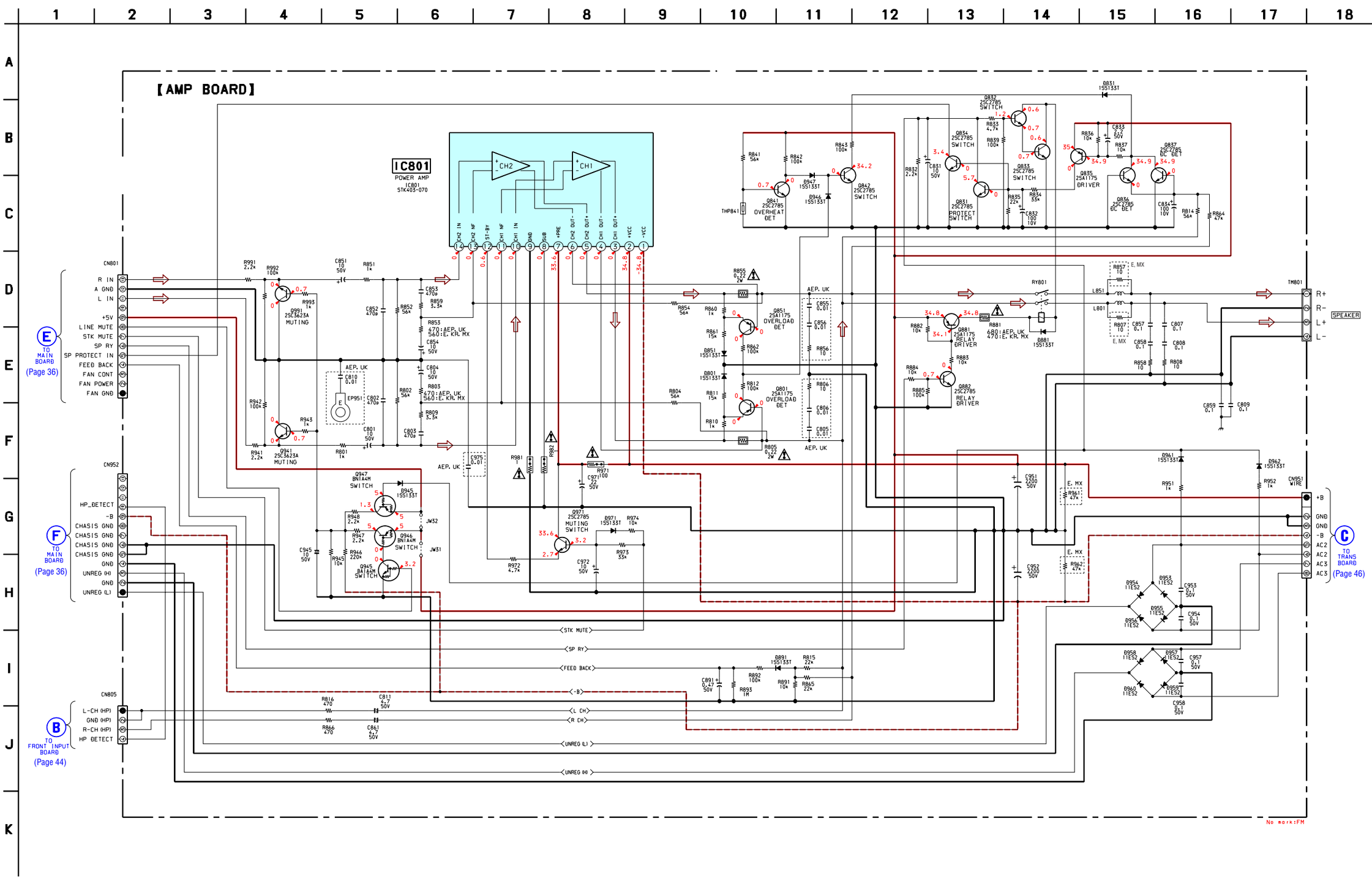
7-12. Printed Wiring Board DECK Section • See page 27 for Circuit Boards Location.



• **Semiconductor Location**

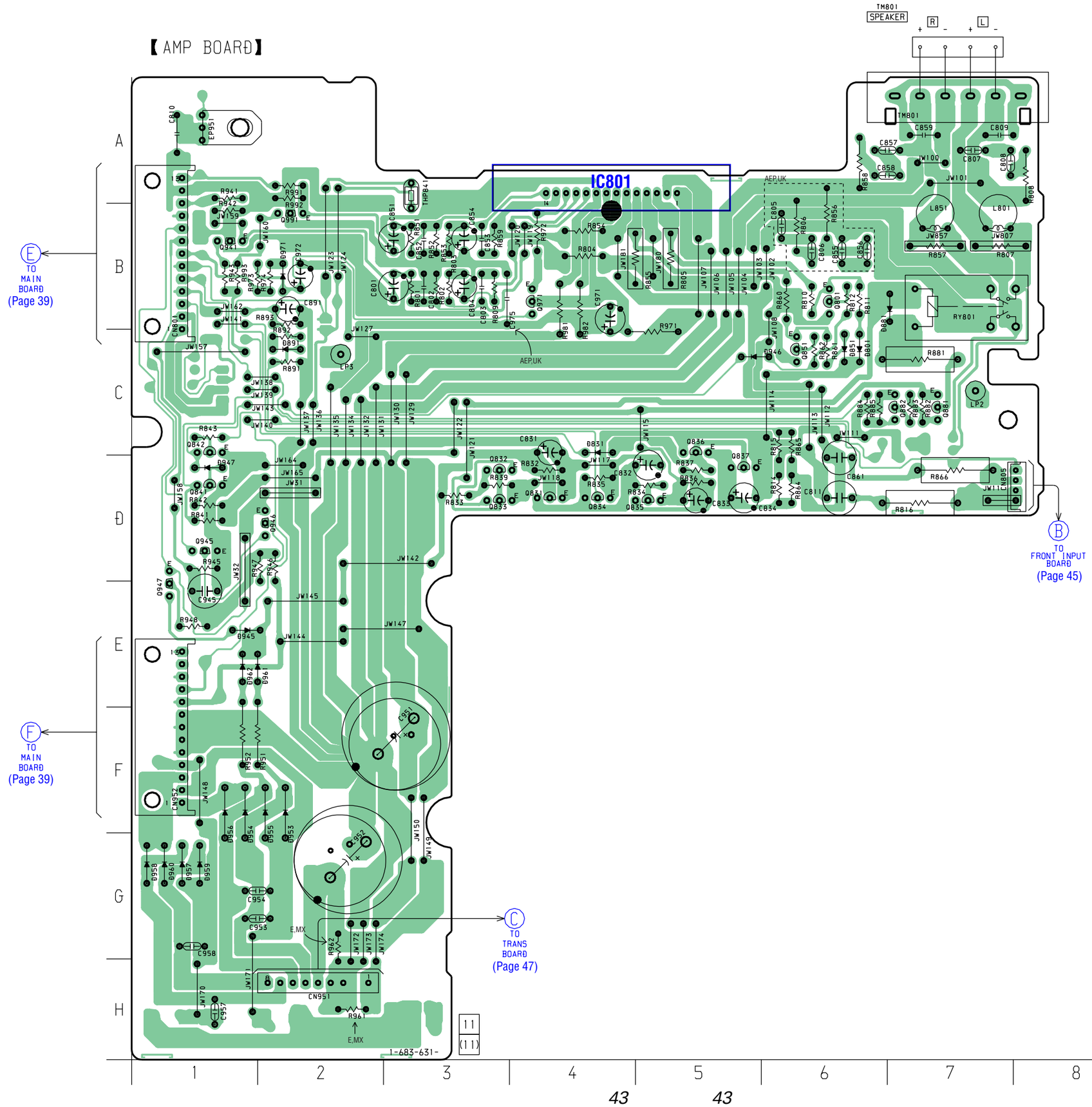
Ref. No.	Location
IC601	B-2
IC602	B-3
Q639	C-1
Q640	C-1
Q641	C-2
Q642	D-3
Q643	D-3
Q680	B-2
Q681	B-3

7-13. Schematic Diagram AMP Section



7-14. Printed Wiring Board AMP Section

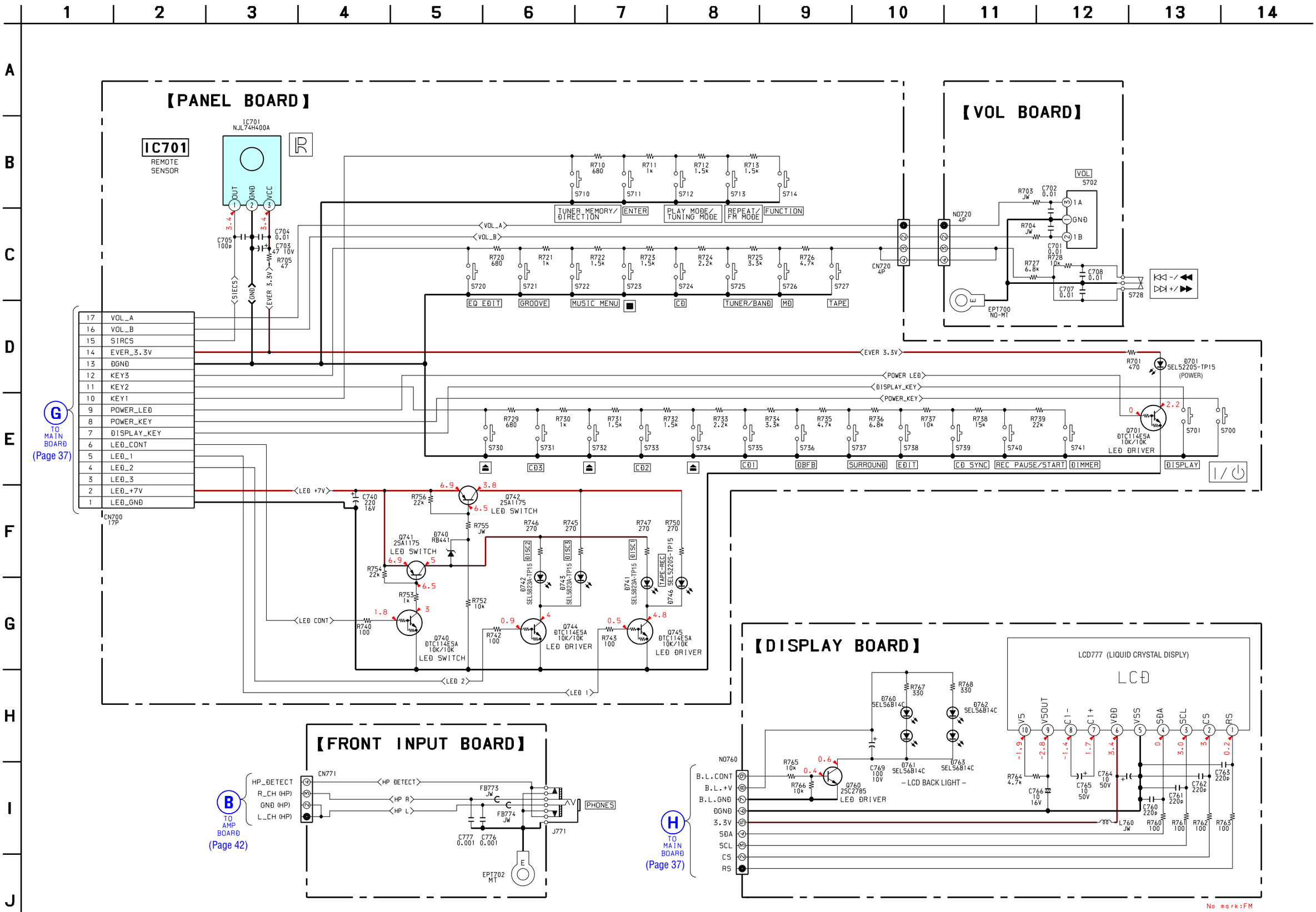
• See page 27 for Circuit Boards Location.



- **Semiconductor Location**

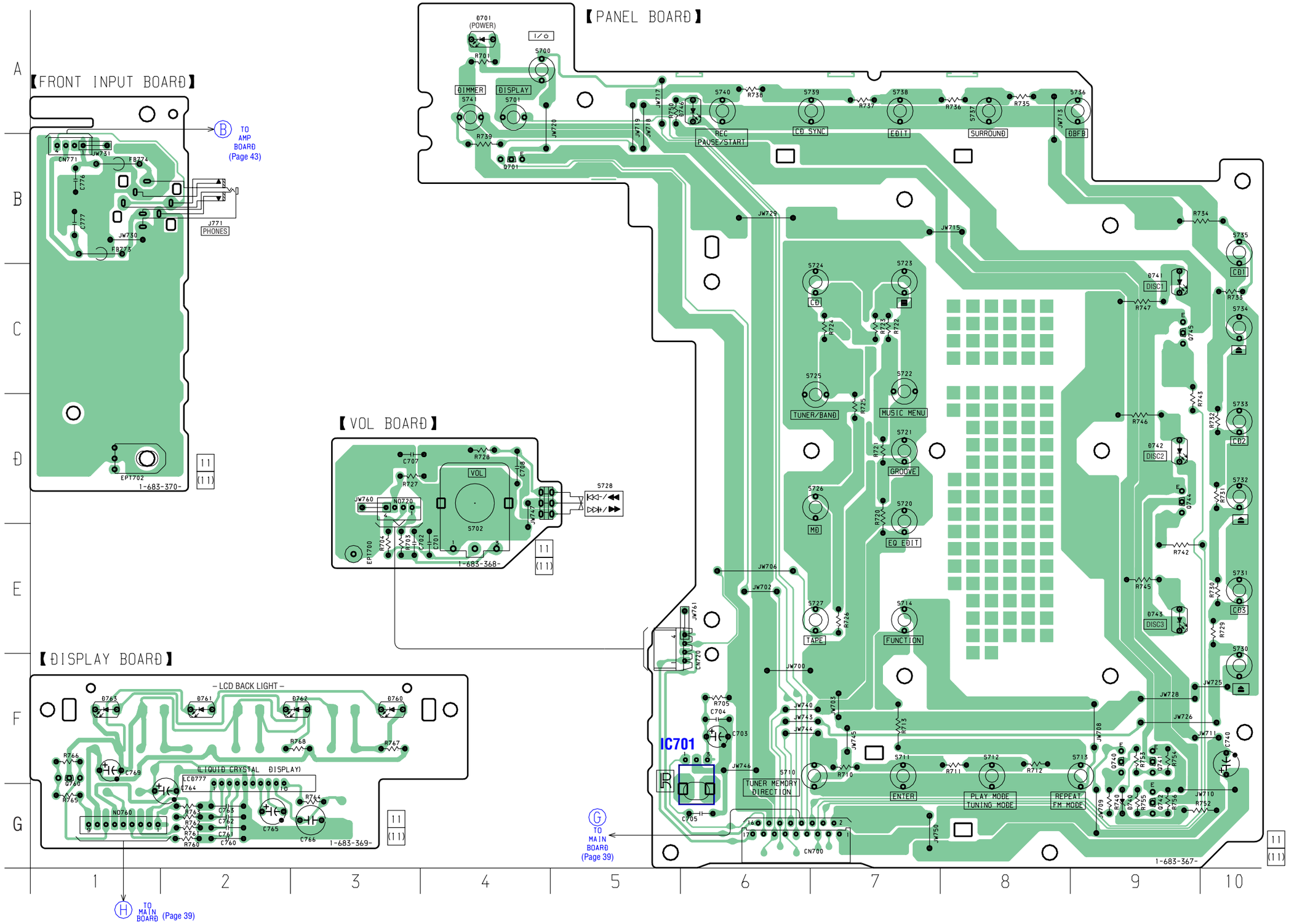
Ref. No.	Location
D801	C-6
D831	D-4
D851	C-6
D881	B-7
D891	C-2
D945	E-1
D946	C-6
D947	D-1
D953	F-2
D954	F-1
D955	F-2
D956	F-1
D957	G-1
D958	G-1
D959	G-1
D960	G-1
D961	E-2
D962	E-1
D971	B-2
D991	C-7
IC801	B-4
Q801	B-6
Q831	D-4
Q832	D-3
Q833	D-3
Q834	D-4
Q835	D-5
Q836	D-5
Q837	D-5
Q841	D-1
Q842	D-1
Q851	C-6
Q881	C-7
Q882	C-7
Q941	B-1
Q945	D-1
Q946	D-2
Q947	E-1
Q971	B-4
Q991	B-2

7-15. Schematic Diagram PANEL Section



7-16. Printed Wiring Board PANEL Section

• See page 27 for Circuit Boards Location.



• **Semiconductor Location**

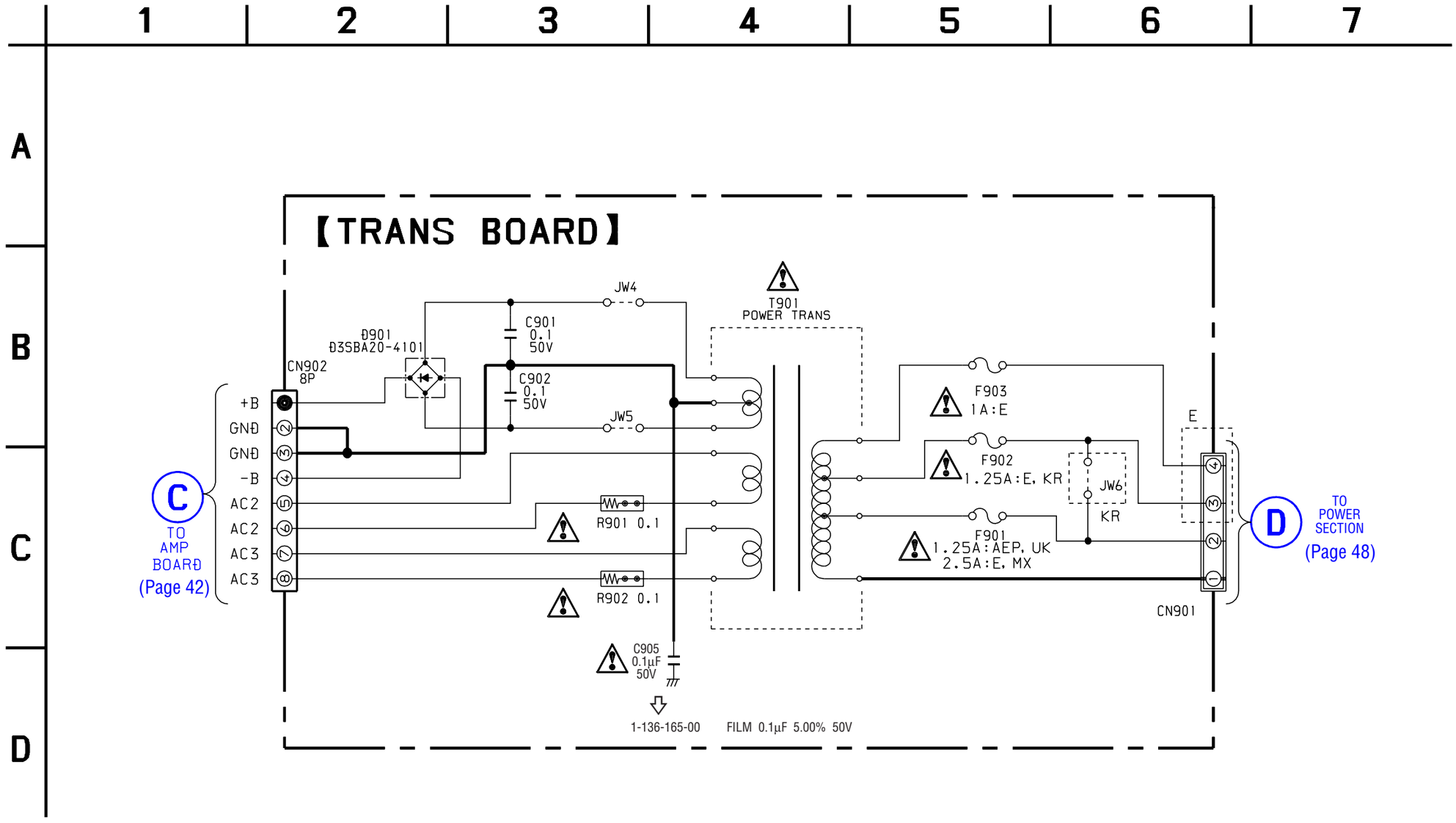
DISPLAY BOARD

Ref. No.	Location
D760	F-3
D761	F-2
D762	F-3
D763	F-1
Q760	F-1

PANEL BOARD

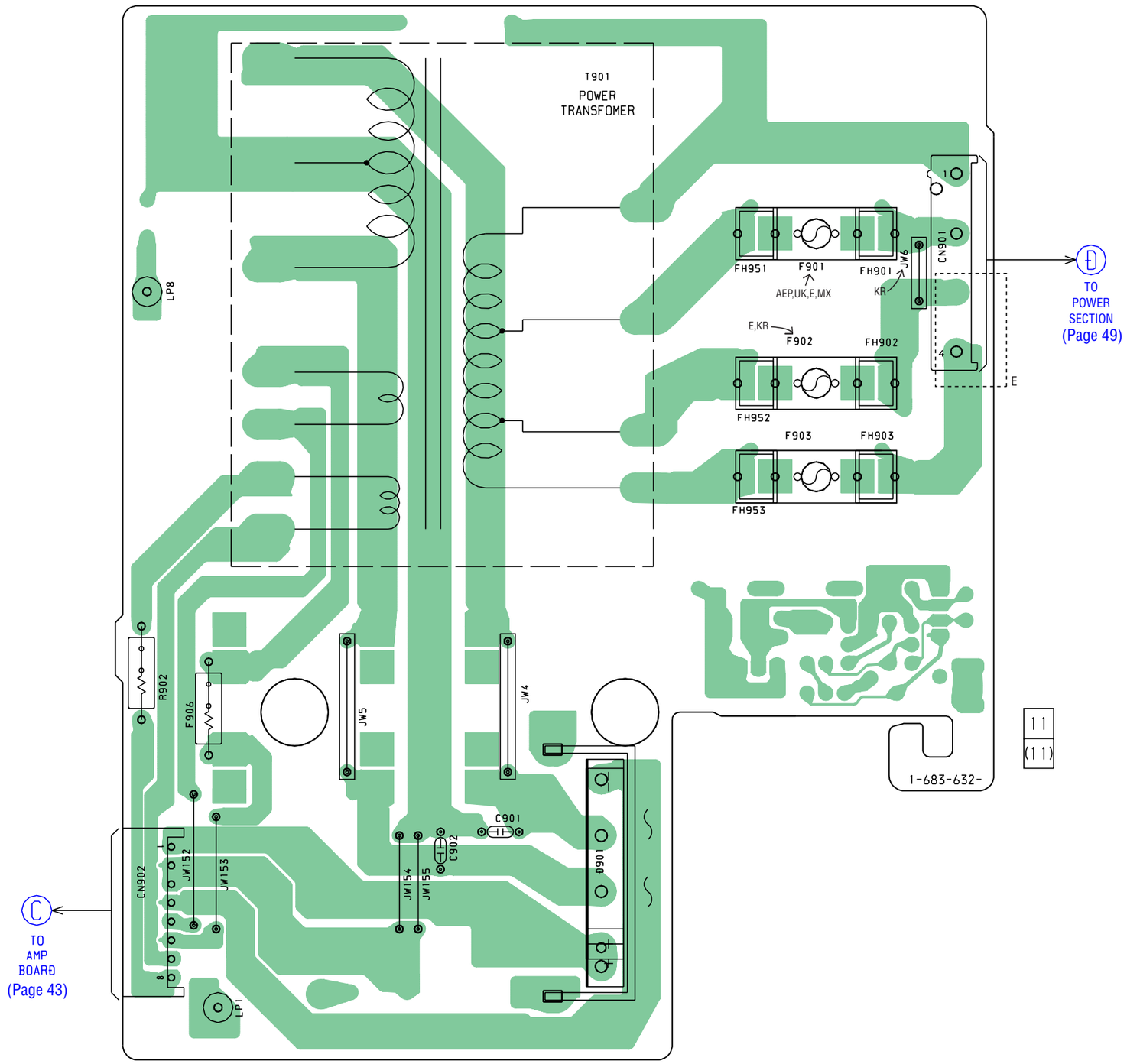
Ref. No.	Location
D701	A-4
D740	G-9
D741	C-9
D742	D-9
D743	E-9
D746	A-6
IC701	G-6
Q701	B-4
Q740	F-9
Q741	F-9
Q742	G-9
Q744	D-9
Q745	C-9

7-17. Schematic Diagram TRANS Section

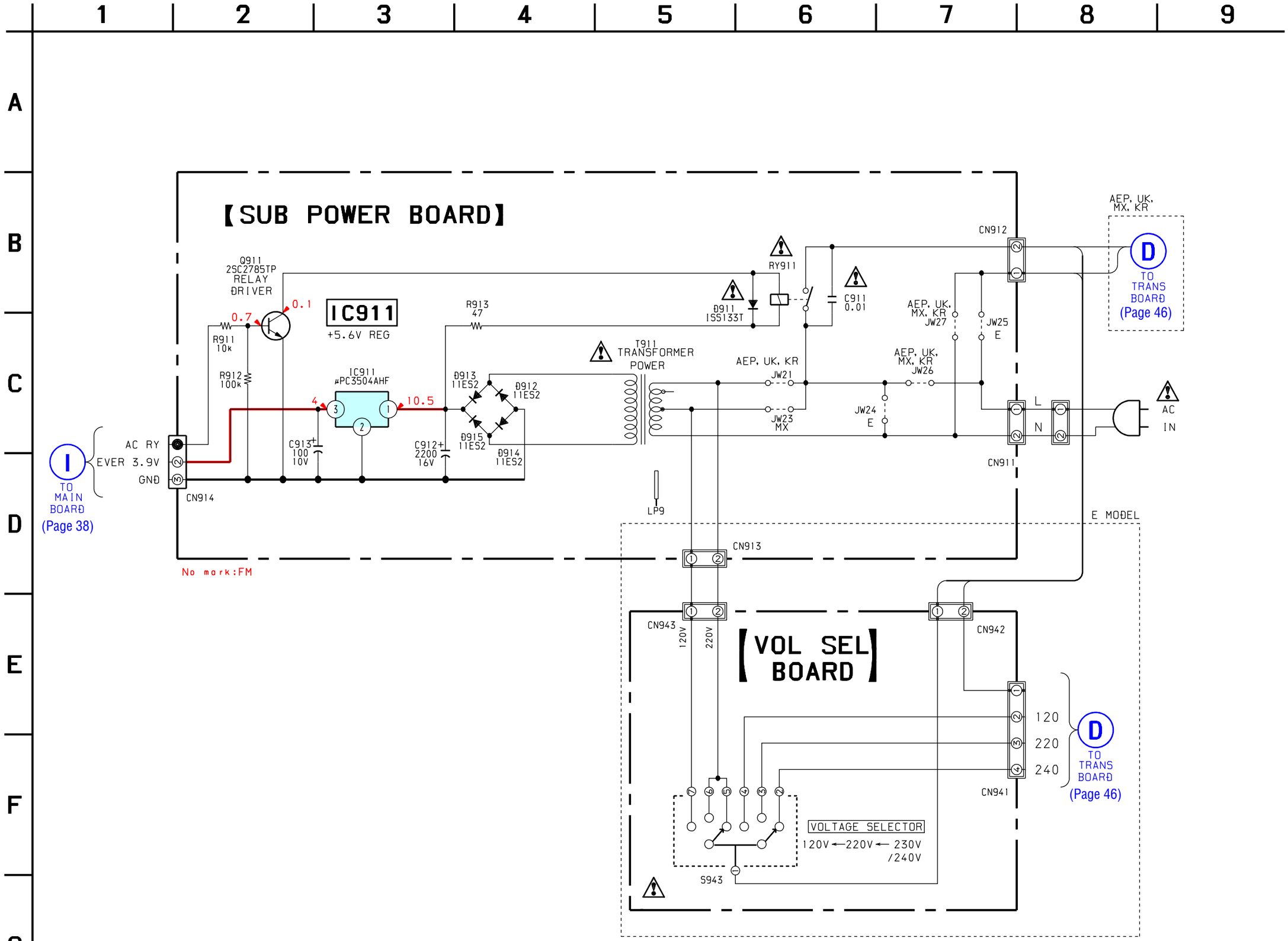


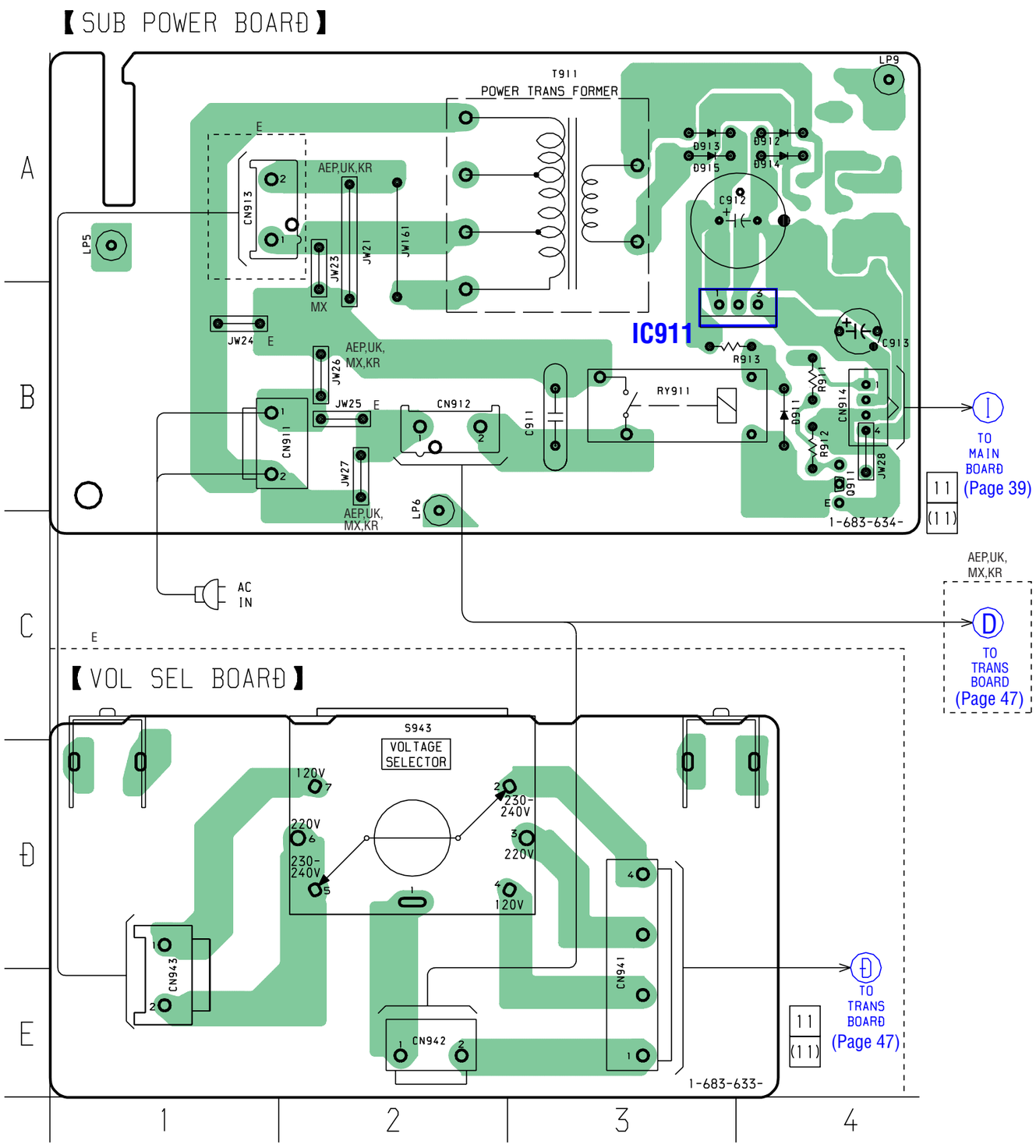
7-18. Printed Wiring Board TRANS Section • See page 27 for Circuit Boards Location.

【TRANS BOARD】



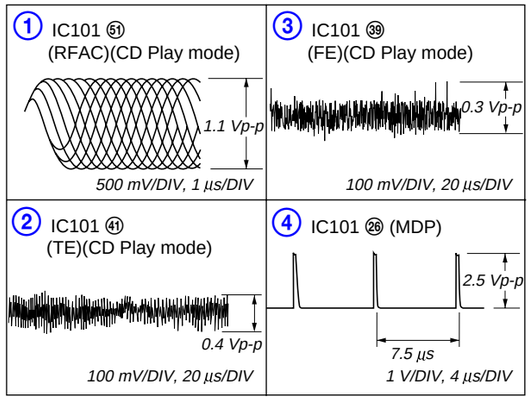
7-19. Schematic Diagram POWER Section



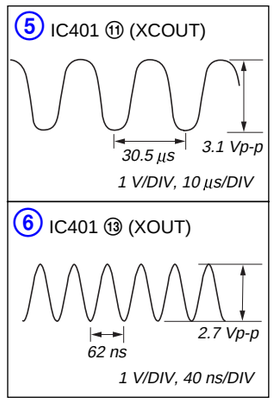

【SUB POWER BOARD】
T911
POWER TRANS FORMER
LP9
E
AEP,UK,KR
CN913
JW161
JW21
JW23
MX
LP5
JW24
E
AEP,UK,
MX,KR
JW26
JW25
E
CN912
CN911
C911
JW27
AEP,UK,
MX,KR
LP6
AC
IN
D912
D913
D914
D915
C912
IC911
R913
RY911
C913
R911
D911
R912
CN914
JW28
Q911
E
1-683-634-
TO
MAIN
BOARD
(Page 39)
11
(11)
AEP,UK,
MX,KR
D
TO
TRANS
BOARD
(Page 47)
E
【VOL SEL BOARD】
S943
VOLTAGE
SELECTOR
120V
220V
230-
240V
230-
240V
220V
120V
CN943
CN942
CN941
TO
TRANS
BOARD
(Page 47)
11
(11)
1-683-633-
A
B
C
D
E
1
2
3
4

• WAVEFORMS

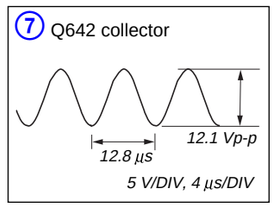
– BD SECTION –



– MAIN SECTION –



– DECK SECTION –



7-21. IC Pin Function Description

• IC401 M30622MGN-A00FP MASTER CONTROL (MAIN BOARD)

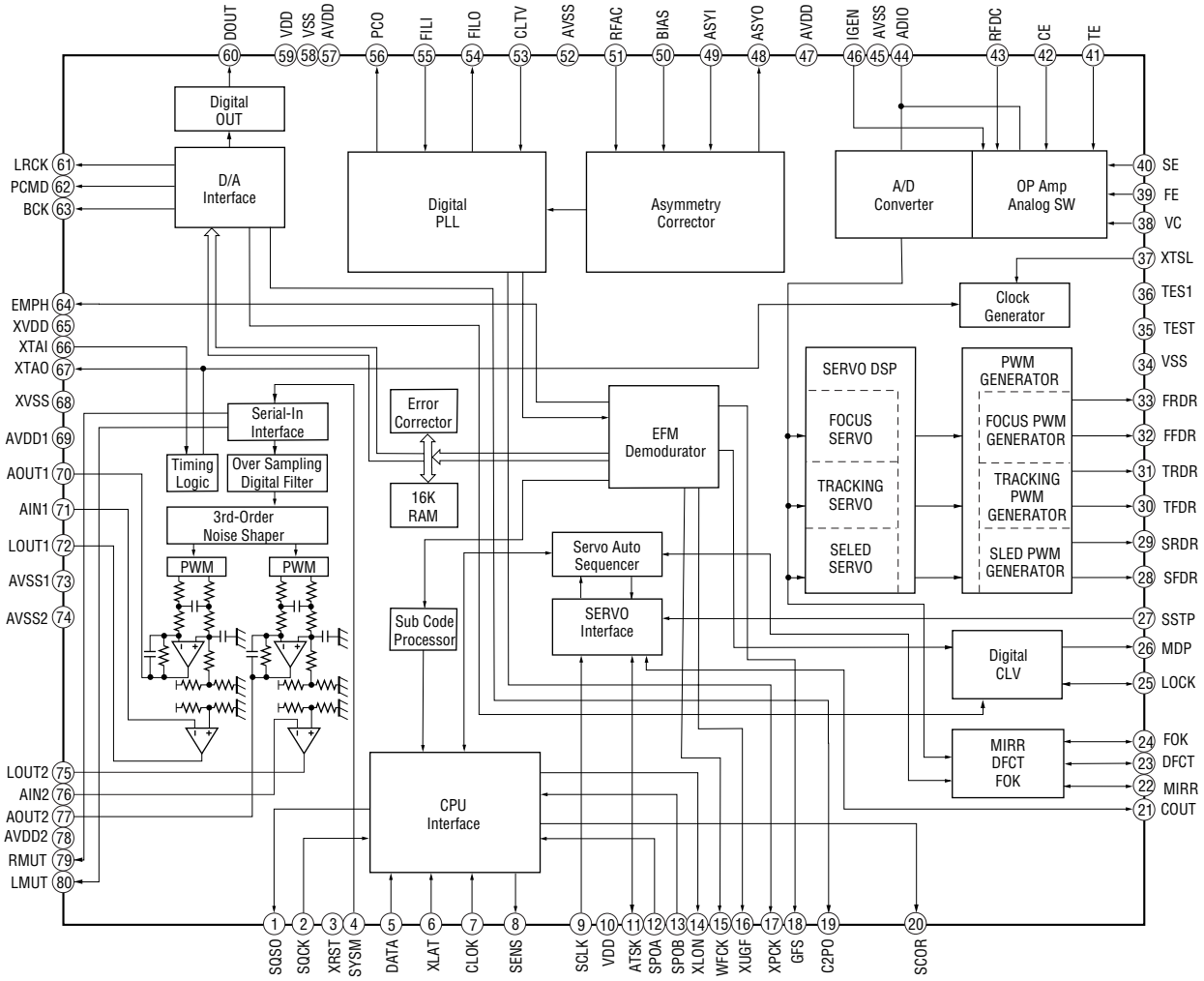
Pin No.	Pin Name	I/O	Description
1	NC	–	Not used
2	RDS DATA	I	RDS DATA signal input
3	LCD RS	O	LCD reset signal output
4	SIRCS	I	Remote control receiver data signal input
5	LCD DATA	O	LCD DATA signal output
6	LCD STB	O	LCD STB signal output
7	LCD SCK	O	LCD clock signal output
8	BYTE	–	External data bus width select input (connected to ground)
9	CNVSS	–	Processor mode switch (connected to ground)
10	XCIN	I	Sub clock input
11	XCOUT	O	Sub clock output
12	RESET	I	System reset input
13	XOUT	O	Main system clock output
14	VSS	–	Ground
15	XIN	I	Main system clock input
16	VCC	–	Power supply (+3.3V)
17	NMI	I	Not used (connected to Vcc)
18	RDS INT	I	RDS interrupt signal input
19	SCOR	I	CD subcode sync detect signal input
20	AC CUT	I	AC detect signal input
21	ST MUTE	O	Tuner muting control signal output
22	ST CE	O	Tuner chip enable signal output
23	ST DOUT	O	Tuner data signal output
24	PWM3	O	BU PWM3 signal output
25	ST DIN	I	Tuner data signal input
26	PWM2	O	BU PWM2 signal output
27	ST CLK	O	Tuner clock signal output
28	PWM1	O	BU PWM1 signal output
29	IIC CLK	O	IIC clock output
30	IIC DATA	O	IIC data output
31	NC	–	Not used (open)
32	SQ DATA IN	I	CD SQ data input
33	SQ CLK	O	CD SQ clock output
34	STEREO	I	STEREO signal input (L=ON,H=OFF)
35	CD DATA	O	CD data output
36	XLT	O	CD latch signal output
37	CD CLK	O	CD clock output
38	TC PLAY	I	Tape deck play switch signal input
39	TC MUTE	O	Tape deck line muting control signal output
40	TC LID	I	Tape deck lid detect signal input
41	REC MUTE	O	REC muting control signal output (H=ON,L=OFF)
42	BIAS	O	BIAS control signal output (H=ON,L=OFF)
43	TC RELAY	O	Tape deck relay control signal output (H=ON,L=OFF)
44	ALC	O	ALC control signal output (L=ON,H=OFF)
45	STB LED	O	Standby LED control signal output (H=ON,L=OFF)
46	LED3	O	LED control signal output (not used)
47	LED2	O	LED control signal output
48	LED1	O	LED control signal output
49	LED CONT	O	LED control signal output for LED 1 to 3
50	HP DETECT	I	Headphone detect signal input

Pin No.	Pin Name	I/O	Description
51	BACK LIGHT	O	Back light LED control signal output
52	VOL B	I	Volume signal input from the rotary encoder
53	VOL A	I	Volume signal input from the rotary encoder
54	LDON	O	LDON signal output to IC103(CXA2581N)
55	NC	–	Not used (open)
56	SENS	I	SENS signal input from IC101(CXD3017Q)
57	TUNED	I	TUNED detect signal input (L=ON,H=OFF)
58	TC TRG	O	Tape deck trigger control signal output (H=ON,L=OFF)
59	CAPM CONT	O	Capstan motor control signal output (H=REV,L=FWD,L=STOP)
60	XRST	O	CD reset signal output
61	NC	–	Not used
62	VCC	–	Power supply (+3.3V)
63	SOFT TEST	O	Test point (soft check out)
64	VSS	–	Ground
65	CD POWER	O	CD power control signal output (H=ON,L=OFF)
66	CD MUTE	O	CD muting control signal output
67	LOAD OUT	O	Loading motor control signal output
68	LOAD IN	O	Loading motor control signal output
69	OPEN	I	Tray open detect signal input
70	CLOSE	I	Tray close detect signal input
71	T SENS1	I	CD table detect signal input
72	T SENS2	I	CD table detect signal input
73	DISPLAY KEY	I	DISPLAY key detect signal input
74	POWER KEY	I	Power key detect signal input
75	NC	–	Not used
76	T SENS3	I	CD table detect signal input
77	DISC SENS	I	Disc detect signal input
78 to 80	NC	–	Not used
81	LINE MUTE	O	Line muting control signal output (H=ON,L=OFF)
82	STAND BY RELAY	O	Standby relay control signal output
83	FAN CONT	O	Fan motor control signal output (not used)
84	STK POWER	O	Power amplifier control signal output (H=ON,L=OFF)
85	FRONT RELAY	O	Front speaker relay control signal output (H=ON,L=OFF)
86	PROTECT	I	Speaker protect signal input (L=ON,H=OFF)
87	AMP DATA	O	Data output to the sound processor
88	AMP CLK	O	Clock output to the sound processor
89	(VCD DET)	–	Not used
90	TC SHUT	I	Tape deck reel pulse signal input
91	TC HALF/REC	I	Tape deck half detect signal input
92	MODEL IN	I	Model input terminal
93	SPEC IN	I	Version select input terminal
94	KEY3	I	Key input signal from the function key
95	KEY2	I	Key input signal from the function key
96	AVSS	–	Analog ground
97	KEY1	I	Key input signal from the function key
98	VREF	–	Analog reference voltage
99	AVCC	–	Analog power supply
100	NC	–	Not used

7-22. IC Block Diagrams

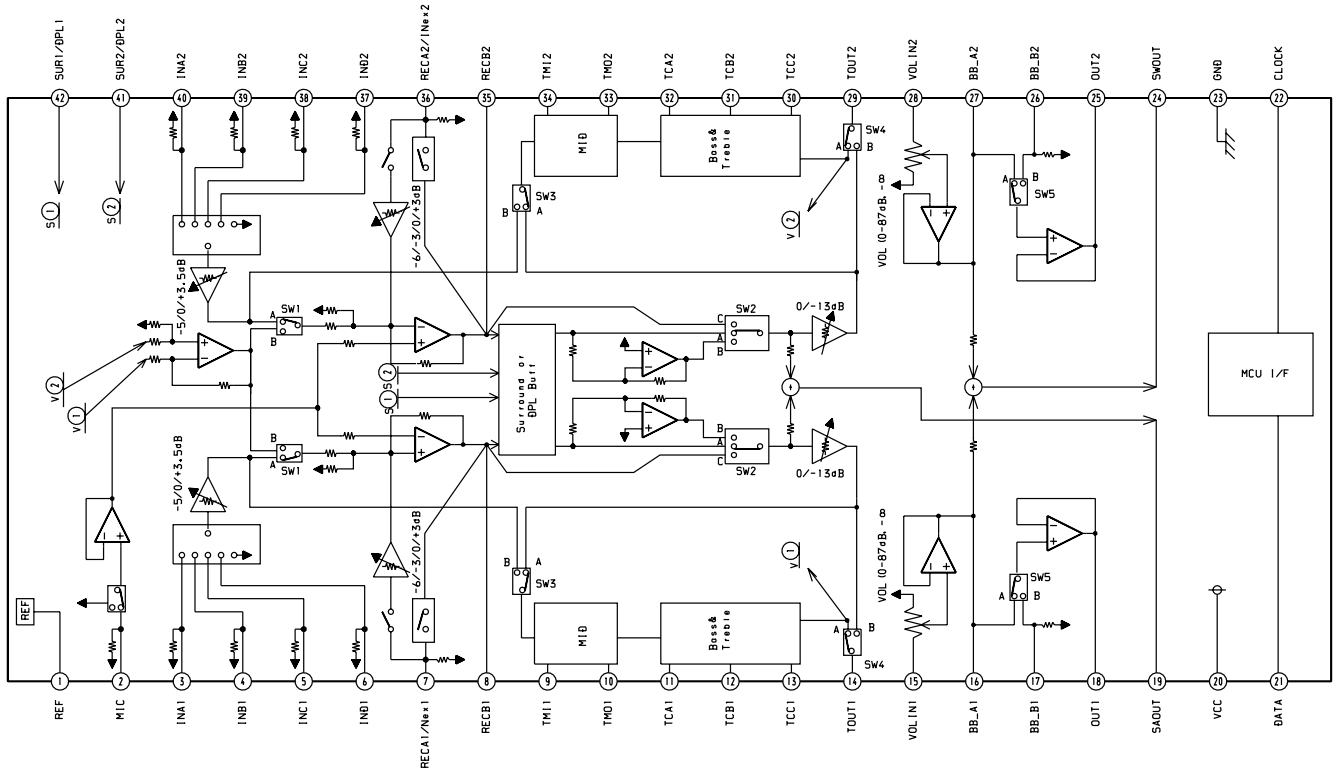
– BD BOARD –

IC101 CXD3017Q



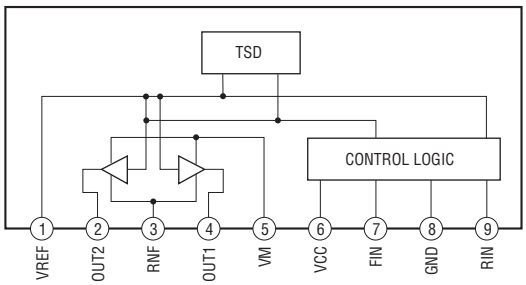
– MAIN BOARD –

IC201 M61519FPD61G



– DRIVER BOARD –

IC701 BA6956AN

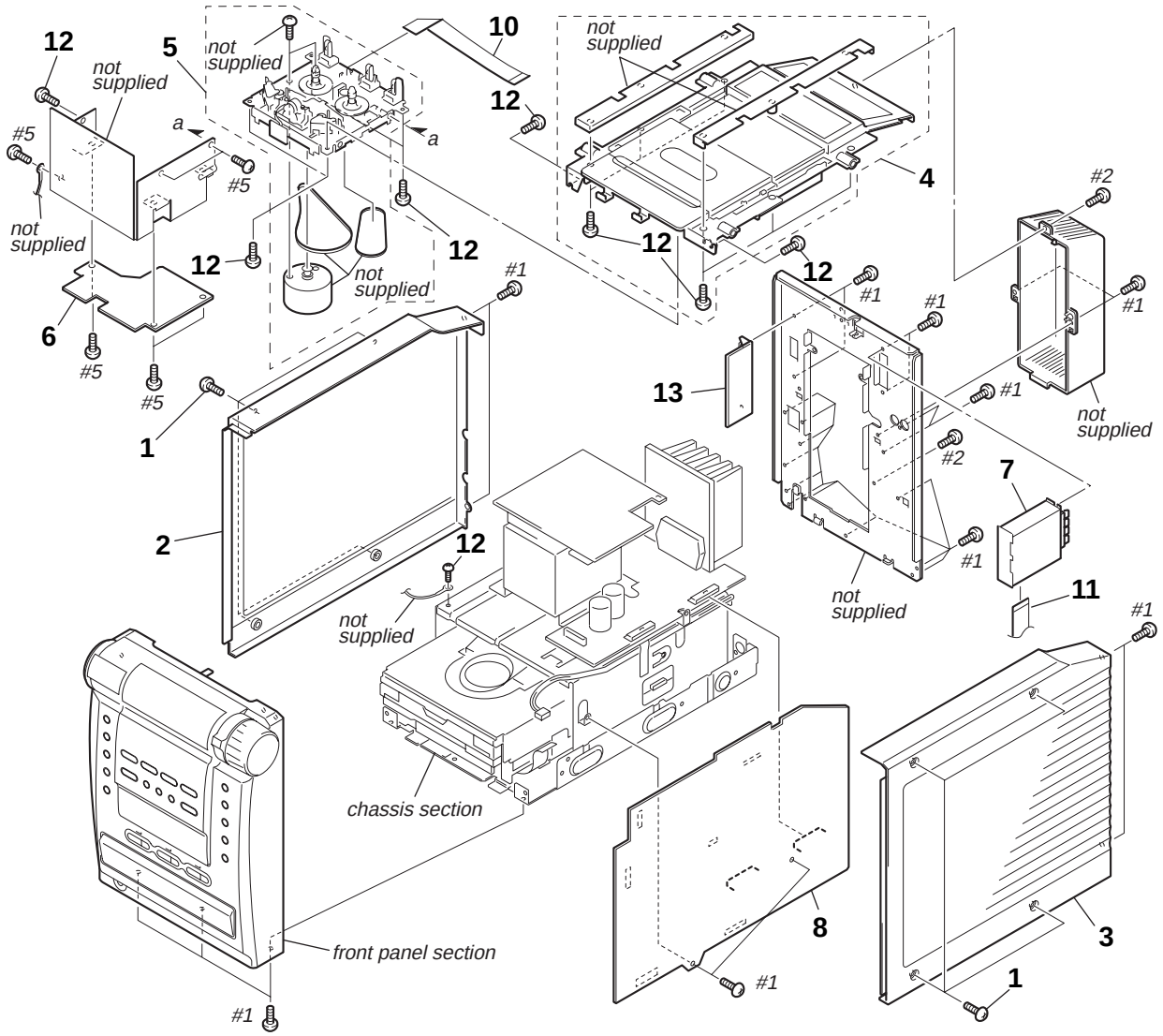


SECTION 8
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation
  MX : Mexican model
  KR : Korea model

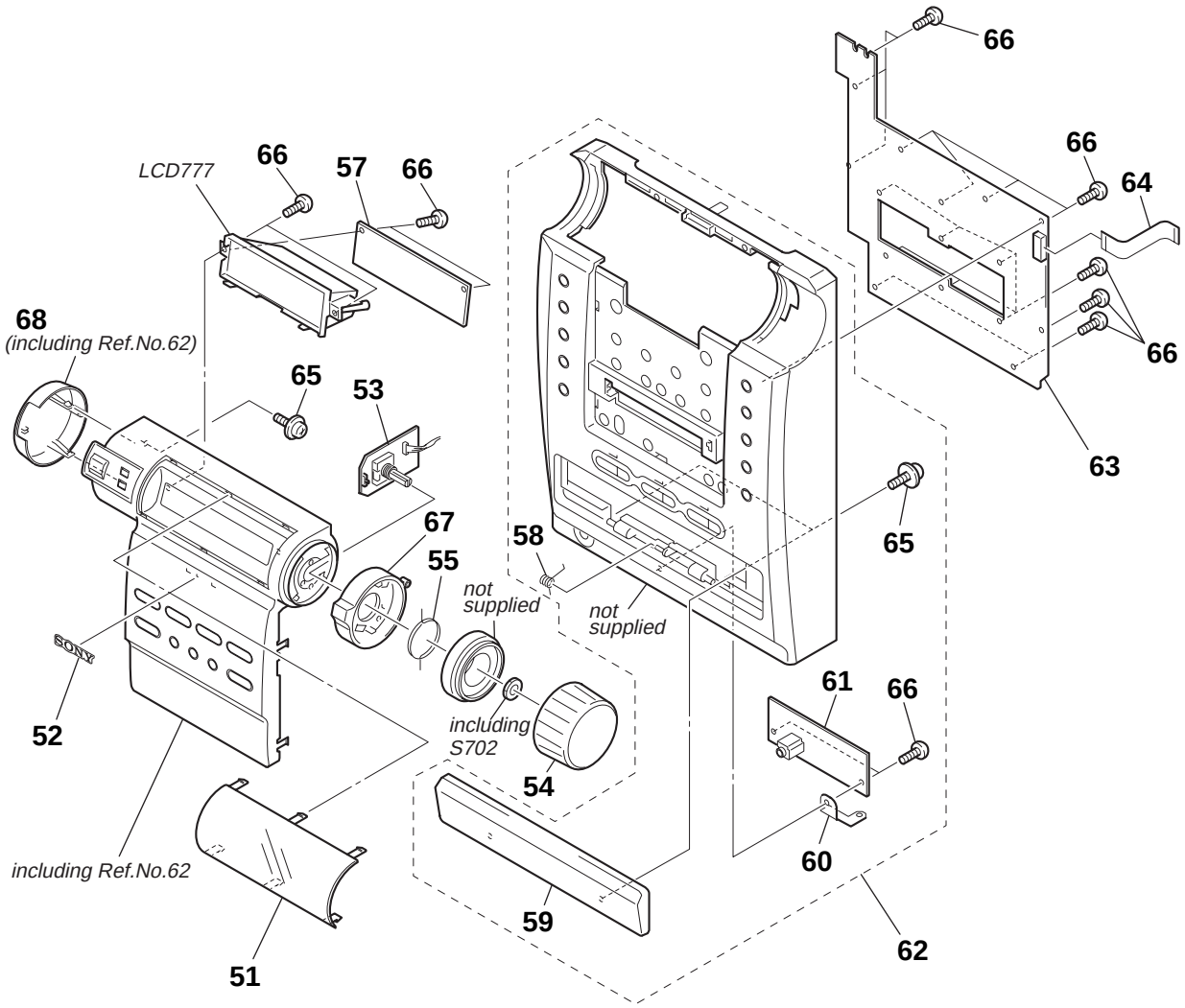
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

8-1. Side Panel, Back Panel Section



Ref. No.	Part No.	Description	Remarks
1	3-363-099-11	SCREW (CASE 3 TP2)	
2	4-237-520-01	PANEL (L), SIDE	
3	4-237-521-01	PANEL (R), SIDE	
4	X-4954-300-1	TOP PANEL ASSY	
5	1-796-351-21	MECHANISM, SIGNAL CASSETTE	
6	A-4727-763-A	TC BOARD, COMPLETE	
7	1-693-570-21	TUNER UNIT (FM/AM) (AEP,UK)	
7	1-693-572-71	TUNER UNIT (FM/AM) (KR,MX)	
7	1-693-574-71	TUNER UNIT (FM/AM) (E)	
8	A-4440-796-A	MAIN BOARD, COMPLETE (AEP,UK)	
8	A-4440-800-A	MAIN BOARD, COMPLETE (KR)	
8	A-4676-505-A	MAIN BOARD, COMPLETE (E,MX)	
10	1-769-910-11	WIRE (FLAT TYPE) (9 CORE)	
11	1-769-945-11	WIRE (FLAT TYPE) (11 CORE) (E,KR,MX)	
11	1-773-009-11	WIRE (FLAT TYPE) (15 CORE) (AEP,UK)	
12	4-951-620-01	SCREW (2.6X8), +BVTP	
13	1-683-633-11	VOL SEL BOARD (E)	
#1	7-685-646-79	SCREW +BVTP 3X8	TYPE2 N-S
#2	7-685-872-09	SCREW +BVTT 3X8	(S)
#5	7-685-861-01	SCREW +BVTT 2.6X5	(S)

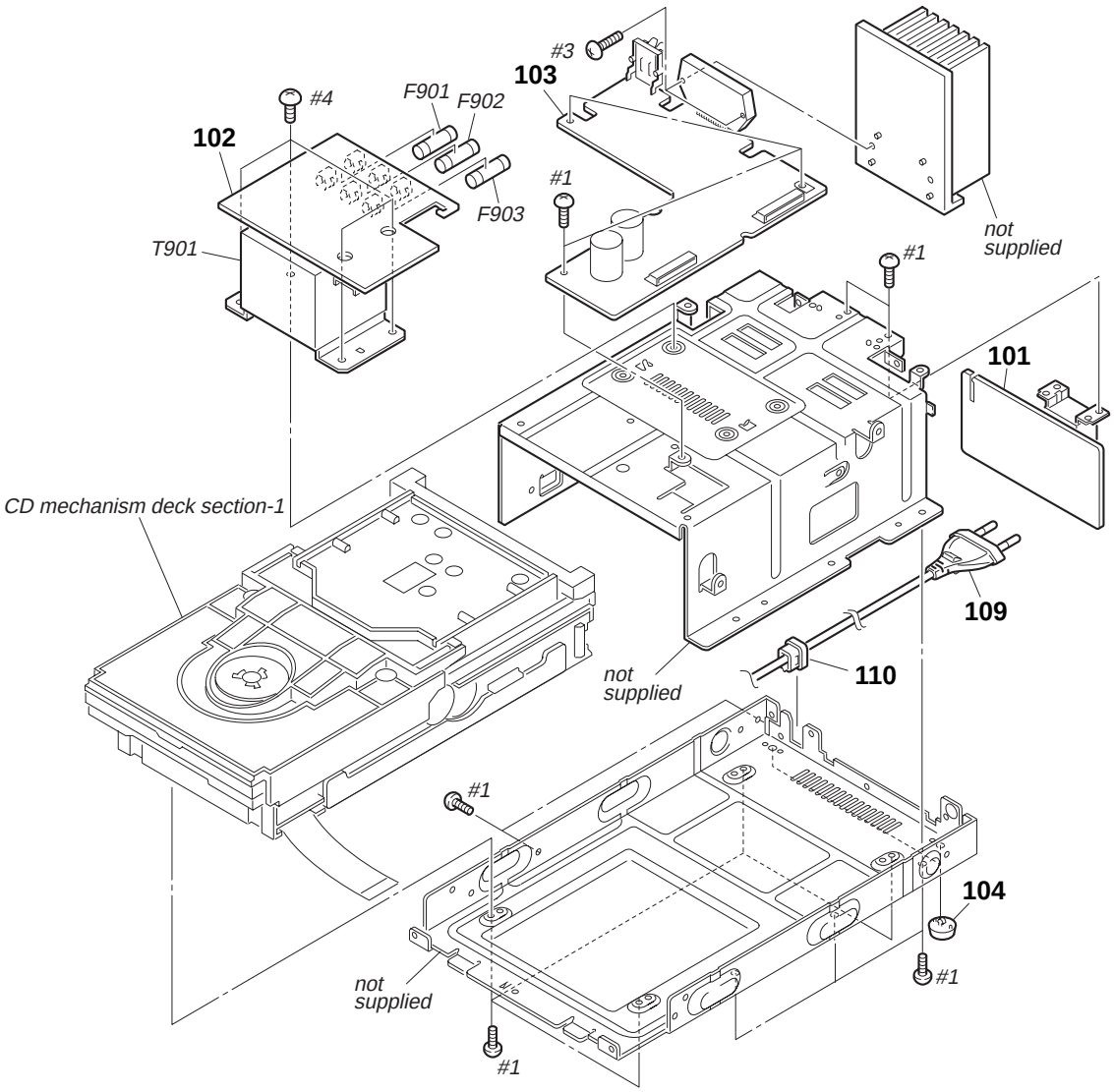
8-2. Front Panel Section



Ref. No.	Part No.	Description	Remarks
51	4-237-501-01	WINDOW	
52	4-962-708-71	EMBLEM (4-A), SONY	
53	1-683-368-11	VOL BOARD	
54	4-237-504-01	KNOB (VOL)	
55	4-237-530-01	SPRING	
57	1-683-369-11	DISPLAY BOARD	
58	4-231-670-11	SPRING (CD)	
59	4-237-512-01	LID, CD	
60	4-237-527-01	GROUND	
61	1-683-370-11	FRONT INPUT BOARD	

Ref. No.	Part No.	Description	Remarks
62	X-4954-299-1	PANEL ASSY, FRONT (AEP,UK)	
62	X-4954-302-1	FRONT (PANEL) ASSY (E,KR,MX)	
63	A-4727-759-A	PANEL BOARD, COMPLETE	
64	1-773-037-11	WIRE (FLAT TYPE) (17 CORE)	
65	4-933-134-41	SCREW (+PTPWH 2.6X5)	
66	4-951-620-01	SCREW (2.6X8), +BVTP	
67	4-237-505-01	SHUTTLE	
68	4-237-503-01	CAP	
LCD777	1-804-602-11	DISPLAY PANEL, LIQUID CRYSTAL	

8-3. Chassis Section

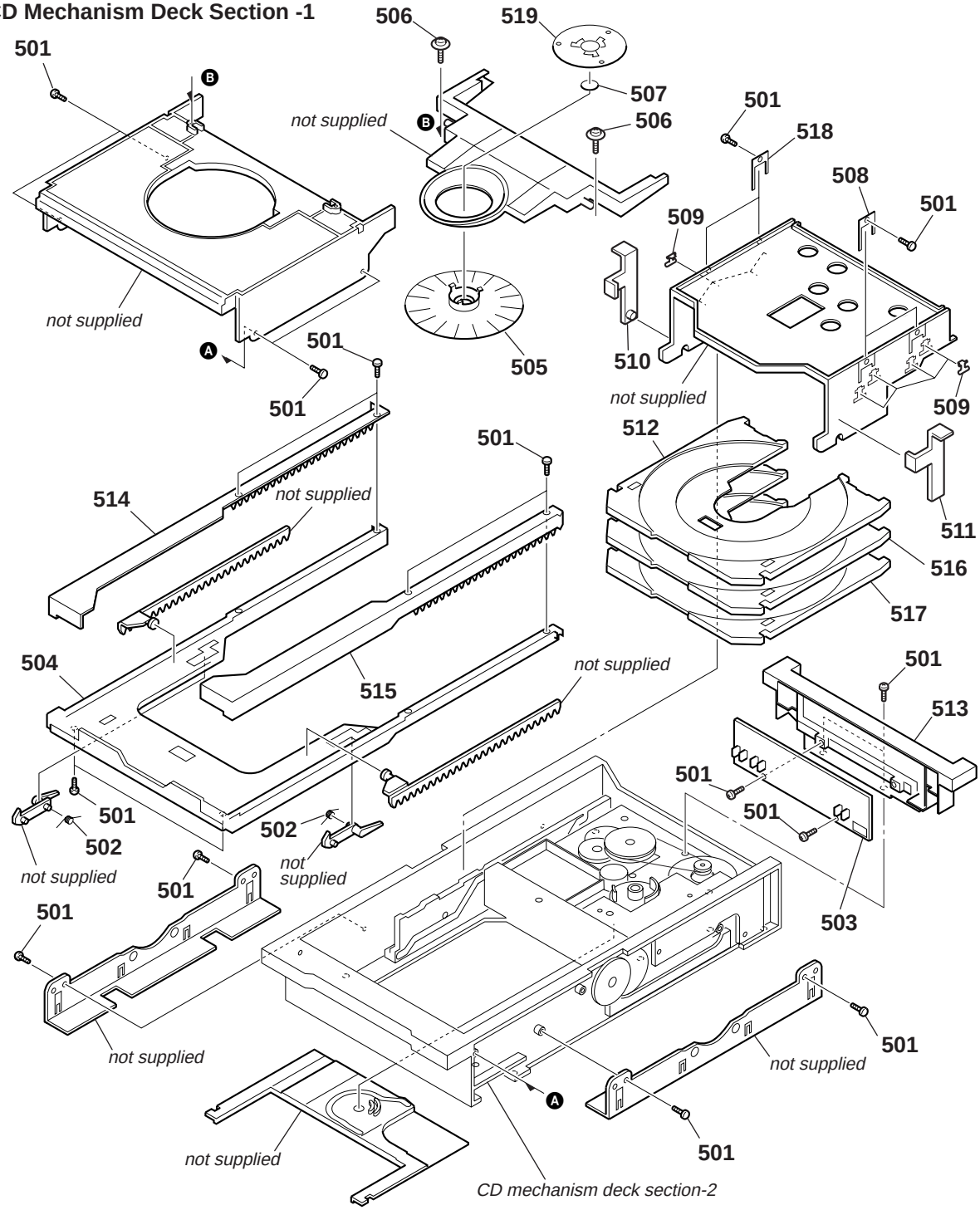


Ref. No.	Part No.	Description	Remarks
101	1-683-634-11	SUB POWER BOARD	
102	1-683-632-11	TRANS BOARD	
103	A-4676-509-A	AMP BOARD, COMPLETE (E,MX)	
103	A-4727-753-A	AMP BOARD, COMPLETE (AEP,UK)	
103	A-4727-765-A	AMP BOARD, COMPLETE (KR)	
104	4-965-822-01	FOOT	
⚠109	1-769-079-21	CORD, POWER (KR)	
⚠109	1-777-071-81	CORD, POWER (AEP,UK)	
⚠109	1-791-901-11	CORD, POWER (E,MX)	
110	3-703-571-11	BUSHING (S) (4516), CORD (E,MX)	
* 110	3-703-244-00	BUSHING (2104), CORD (AEP,UK,KR)	

Ref. No.	Part No.	Description	Remarks
⚠F901	1-533-466-11	FUSE, GLASS TUBE (T) (DIA. 5) (1.25A/250V)	(AEP,UK)
⚠F901	1-533-469-11	FUSE, GLASS TUBE (DIA. 5) (2.5A/250V)	(E,MX)
⚠F902	1-533-466-11	FUSE, GLASS TUBE (DIA. 5) (1.25A/250V)	(E,KR)
⚠F903	1-533-465-11	FUSE, GLASS TUBE (DIA. 5)(1A/250V) (E)	
⚠T901	1-435-831-11	TRANSFORMER, POWER (E,KR,MX)	
⚠T901	1-437-558-11	TRANSFORMER, POWER (AEP,UK)	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#3	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
#4	7-685-881-09	SCREW +BVTT 4X8 (S)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

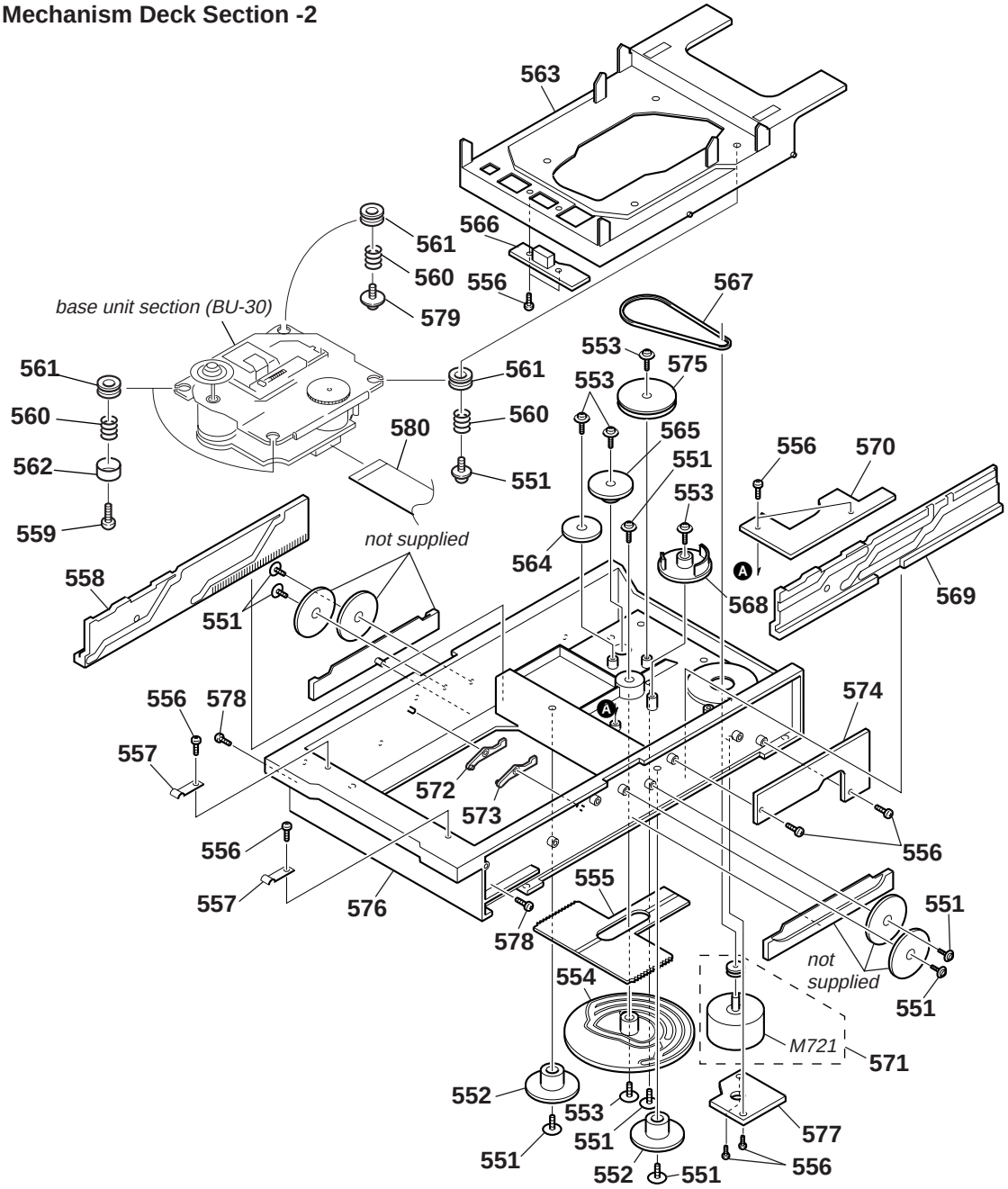
8-4. CD Mechanism Deck Section -1



Ref. No.	Part No.	Description	Remarks
501	4-218-253-31	SCREW (M2.6), +BTTP	
502	4-228-995-01	SPRING (L), TORSION	
503	1-678-457-11	TRAY SENSOR BOARD	
504	4-228-972-01	TRAY (MAIN)	
505	X-4953-307-1	PULLEY (A) ASSY, CHUCKING	
506	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
507	4-228-414-01	BRACKET (YOKE)	
508	4-228-980-01	SPRING (STOCKER), LEAF	
509	4-228-981-01	STOPPER (TRAY)	
510	4-228-963-01	SLIDER (STOCKER.L)	

Ref. No.	Part No.	Description	Remarks
511	4-228-964-01	SLIDER (STOCKER.R)	
512	4-228-970-01	TRAY (SUB)	
513	4-229-001-01	HOLDER (SENSOR)	
514	4-228-978-01	COVER (TRAY.R)	
515	4-228-975-01	COVER (TRAY.L)	
516	4-228-970-11	TRAY (SUB)	
517	4-228-970-21	TRAY (SUB)	
518	4-234-423-01	SPRING (STOCKER L), LEAF	
519	4-231-971-01	PULLEY (30B), CHUCKING	

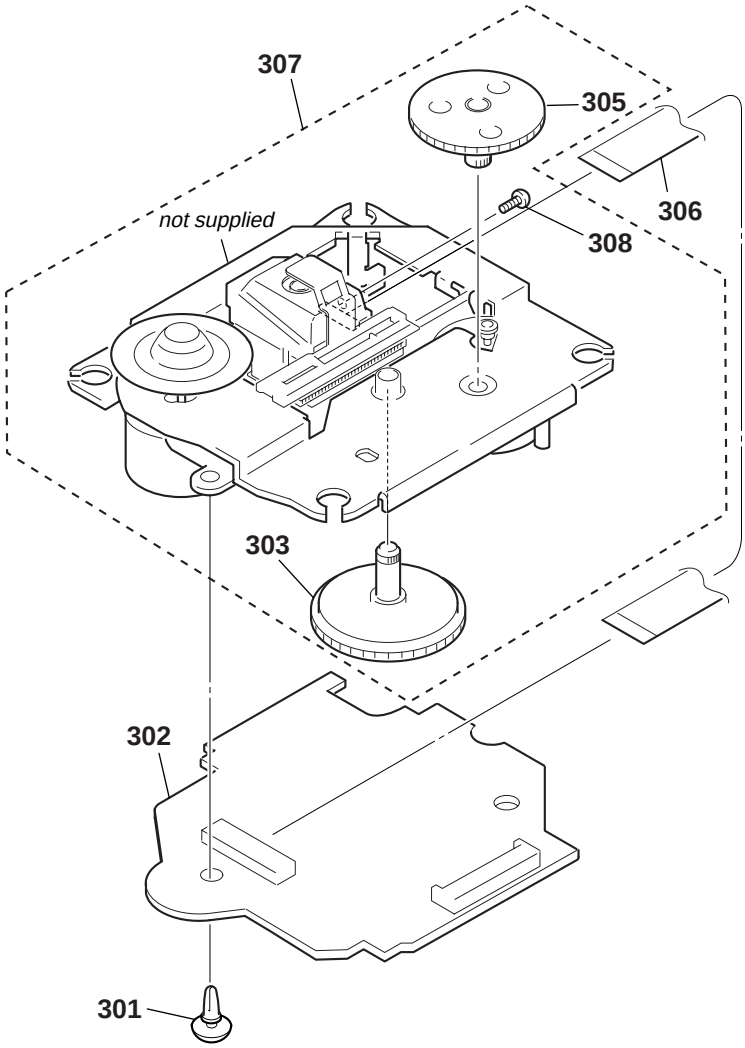
8-5. CD Mechanism Deck Section -2



Ref. No.	Part No.	Description	Remarks
551	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING	
552	4-229-002-01	GEAR (SLIDER)	
553	4-218-254-21	SCREW (M2.6), +PTPWH	
554	4-228-971-01	CAM	
555	4-228-974-01	RACK (CENTER)	
556	4-218-253-61	SCREW (M2.6), +BTTP	
557	4-228-969-01	SPRING (TABLE), LEAF	
558	4-228-977-01	SLIDER (BU.L)	
559	4-951-620-01	SCREW (2.6X8), +BVTP	
560	4-227-045-11	SPRING (INSULATOR), COIL	
561	4-231-451-01	INSULATOR (BU-30)	
562	4-231-151-01	STOPPER (BU)	
563	4-231-517-03	HOLDER (BU30)	
564	4-228-985-01	GEAR (PULLEY)	
565	4-228-997-02	GEAR (CAM)	
566	1-678-463-11	DISK SENSOR BOARD	

Ref. No.	Part No.	Description	Remarks
567	4-228-968-01	BELT	
568	4-228-998-01	GEAR (DETECTION)	
569	4-228-976-01	SLIDER (BU.R)	
570	1-678-462-11	IN OUT SW BOARD	
571	X-4952-971-1	MOTOR ASSY	
572	4-228-999-01	LEVER (MAIN.L)	
573	4-229-000-01	LEVER (MAIN.R)	
574	1-678-460-11	DRIVER BOARD	
575	4-229-003-01	PULLEY	
576	4-228-988-01	CHASSIS	
577	1-678-461-11	MOTOR BOARD	
578	4-218-253-71	SCREW (M2.6), +BTTP	
579	4-227-899-01	SCREW (DIA. 12), FROATING	
580	1-757-523-11	WIRE (FLAT TYPE) (21 CORE)	
M721	1-763-790-11	MOTOR, DC (LOADING MOTOR)	

8-6. Base Unit Section (BU-30)



Ref. No.	Part No.	Description	Remarks
301	3-531-576-11	RIVET	
302	A-4728-678-A	BD BOARD, COMPLETE	
303	4-233-832-01	GEAR (LB)	
305	4-233-831-01	GEAR (LA)	
306	1-757-710-11	WIRE (FLAT TYPE) (16 CORE)	
⚠307	A-4735-188-A	BU-30 (60) ASSY	
308	3-318-203-62	SCREW (B1.7X4), TAPPING	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

AMP

SECTION 9
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- Abbreviation
  KR : Korea model
  MX : Mexican model
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
	A-4727-765-A	AMP BOARD, COMPLETE (KR)			
		**********			
	A-4727-753-A	AMP BOARD, COMPLETE (AEP,UK)			
		**********			
	A-4676-509-A	AMP BOARD, COMPLETE (E,MX)			
		**********			
		< CAPACITOR >			
C801	1-126-964-11	ELECT	10uF	20.00%	50V
C802	1-162-290-31	CERAMIC	470PF	10%	50V
C803	1-162-290-31	CERAMIC	470PF	10%	50V
C804	1-126-964-11	ELECT	10uF	20.00%	50V
C805	1-136-153-00	FILM	0.01uF	5%	50V (AEP,UK)
C806	1-136-153-00	FILM	0.01uF	5%	50V (AEP,UK)
C807	1-136-165-00	FILM	0.1uF	5.00%	50V
C808	1-136-165-00	FILM	0.1uF	5.00%	50V
C809	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C810	1-162-306-11	CERAMIC	0.01uF	30.00%	16V (AEP,UK)
C811	1-107-713-11	ELECT	4.7uF	20.00%	50V
C831	1-126-964-11	ELECT	10uF	20.00%	50V
C832	1-104-665-11	ELECT	100uF	20.00%	10V
C833	1-126-961-11	ELECT	2.2uF	20.00%	50V
C834	1-104-665-11	ELECT	100uF	20.00%	10V
C851	1-126-964-11	ELECT	10uF	20.00%	50V
C852	1-162-290-31	CERAMIC	470PF	10%	50V
C853	1-162-290-31	CERAMIC	470PF	10%	50V
C854	1-126-964-11	ELECT	10uF	20.00%	50V
C855	1-136-153-00	FILM	0.01uF	5%	50V (AEP,UK)
C856	1-136-153-00	FILM	0.01uF	5%	50V (AEP,UK)
C857	1-136-165-00	FILM	0.1uF	5.00%	50V
C858	1-136-165-00	FILM	0.1uF	5.00%	50V
C859	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C861	1-107-713-11	ELECT	4.7uF	20.00%	50V
C891	1-126-959-11	ELECT	0.47uF	20.00%	50V
C945	1-107-714-11	ELECT	10uF	20.00%	50V
C951	1-135-832-11	ELECT	2200uF	20%	50V (AEP,UK,KR)
C951	1-137-839-11	ELECT	2200uF	20%	50V (E,MX)
C952	1-135-832-11	ELECT	2200uF	20%	50V (AEP,UK,KR)
C952	1-137-839-11	ELECT	2200uF	20%	50V (E,MX)
C953	1-136-165-00	FILM	0.1uF	5.00%	50V
C954	1-136-165-00	FILM	0.1uF	5.00%	50V
C957	1-136-165-00	FILM	0.1uF	5.00%	50V
C958	1-136-165-00	FILM	0.1uF	5.00%	50V
C971	1-126-965-91	ELECT	22uF	20.00%	50V
C972	1-126-964-11	ELECT	10uF	20.00%	50V
C975	1-162-306-11	CERAMIC	0.01uF	30.00%	16V (AEP,UK)
		< CONNECTOR >			
CN801	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P			
CN805	1-785-316-11	PIN, CONNECTOR (STRAIGHT) 4P			
CN952	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P			
		< DIODE >			
D801	8-719-911-19	DIODE 1SS133T-72			
D831	8-719-911-19	DIODE 1SS133T-72			
D851	8-719-911-19	DIODE 1SS133T-72			
D881	8-719-911-19	DIODE 1SS133T-72			
D891	8-719-911-19	DIODE 1SS133T-72			
D945	8-719-911-19	DIODE 1SS133T-72			
D946	8-719-911-19	DIODE 1SS133T-72			
D947	8-719-911-19	DIODE 1SS133T-72			
D953	8-719-024-99	DIODE 11ES2-NTA2B			
D954	8-719-024-99	DIODE 11ES2-NTA2B			
D955	8-719-024-99	DIODE 11ES2-NTA2B			
D956	8-719-024-99	DIODE 11ES2-NTA2B			
D957	8-719-024-99	DIODE 11ES2-NTA2B			
D958	8-719-024-99	DIODE 11ES2-NTA2B			
D959	8-719-024-99	DIODE 11ES2-NTA2B			
D960	8-719-024-99	DIODE 11ES2-NTA2B			
D961	8-719-911-19	DIODE 1SS133T-72			
D962	8-719-911-19	DIODE 1SS133T-72			
D971	8-719-911-19	DIODE 1SS133T-72			
		< EARTH >			
* EP951	1-537-738-21	TERMINAL, EARTH			
		< IC >			
IC801	6-600-089-01	IC STK403-070			
		< COIL >			
L801	1-422-009-13	COIL, AIR-CORE			
L851	1-422-009-13	COIL, AIR-CORE			

Ref. No.	Part No.	Description			Remarks
		< TRANSISTOR >			
Q801	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q831	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q832	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q833	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q834	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q835	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q836	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q837	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q841	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q842	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q851	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q881	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q882	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q941	8-729-141-30	TRANSISTOR	2SC3623ATP-LK		
Q945	8-729-116-02	TRANSISTOR	BA1A4M-TP		
Q946	8-729-422-57	TRANSISTOR	BN1A4M-TP		
Q947	8-729-422-57	TRANSISTOR	BN1A4M-TP		
Q971	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q991	8-729-141-30	TRANSISTOR	2SC3623ATP-LK		
		< RESISTOR >			
R801	1-249-417-11	CARBON	1K	5%	1/4W F
R802	1-249-438-11	CARBON	56K	5%	1/4W
R803	1-249-413-11	CARBON	470	5%	1/4W F (AEP,UK)
R803	1-249-414-11	CARBON	560	5%	1/4W F (E,KR,MX)
R804	1-249-438-11	CARBON	56K	5%	1/4W
⚠R805	1-220-755-11	METAL	0.22	10%	2W
R806	1-260-076-11	CARBON	10	5%	1/2W (AEP,UK)
R807	1-260-076-11	CARBON	10	5%	1/2W (E,MX)
R808	1-260-076-11	CARBON	10	5%	1/2W
R809	1-247-843-11	CARBON	3.3K	5%	1/4W
R810	1-249-417-11	CARBON	1K	5%	1/4W F
R811	1-249-431-11	CARBON	15K	5%	1/4W
R812	1-249-441-11	CARBON	100K	5%	1/4W
R814	1-249-438-11	CARBON	56K	5%	1/4W
R815	1-249-433-11	CARBON	22K	5%	1/4W
R816	1-215-890-11	METAL OXIDE	470	5%	2W
R832	1-249-421-11	CARBON	2.2K	5%	1/4W F
R833	1-249-425-11	CARBON	4.7K	5%	1/4W F
R834	1-249-435-11	CARBON	33K	5%	1/4W
R835	1-249-433-11	CARBON	22K	5%	1/4W
R836	1-249-429-11	CARBON	10K	5%	1/4W
R837	1-249-429-11	CARBON	10K	5%	1/4W
R839	1-249-441-11	CARBON	100K	5%	1/4W
R841	1-249-438-11	CARBON	56K	5%	1/4W
R842	1-249-441-11	CARBON	100K	5%	1/4W
R843	1-249-441-11	CARBON	100K	5%	1/4W
R851	1-249-417-11	CARBON	1K	5%	1/4W F
R852	1-249-438-11	CARBON	56K	5%	1/4W
R853	1-249-413-11	CARBON	470	5%	1/4W F (AEP,UK)
R853	1-249-414-11	CARBON	560	5%	1/4W F (E,KR,MX)

Ref. No.	Part No.	Description			Remarks
R854	1-249-438-11	CARBON	56K	5%	1/4W
⚠R855	1-220-755-11	METAL	0.22	10%	2W
R856	1-260-076-11	CARBON	10	5%	1/2W (AEP,UK)
R857	1-260-076-11	CARBON	10	5%	1/2W (E,MX)
R858	1-260-076-11	CARBON	10	5%	1/2W
R859	1-247-843-11	CARBON	3.3K	5%	1/4W
R860	1-249-417-11	CARBON	1K	5%	1/4W F
R861	1-249-431-11	CARBON	15K	5%	1/4W
R862	1-249-441-11	CARBON	100K	5%	1/4W
R864	1-249-437-11	CARBON	47K	5%	1/4W
R865	1-249-433-11	CARBON	22K	5%	1/4W
R866	1-215-890-11	METAL OXIDE	470	5%	2W
⚠R881	1-215-891-11	METAL OXIDE	680	5%	2W (AEP,UK)
⚠R881	1-215-890-11	METAL OXIDE	470	5%	2W (E,KR,MX)
R882	1-249-429-11	CARBON	10K	5%	1/4W
R883	1-249-429-11	CARBON	10K	5%	1/4W
R884	1-249-429-11	CARBON	10K	5%	1/4W
R885	1-249-441-11	CARBON	100K	5%	1/4W
R891	1-249-429-11	CARBON	10K	5%	1/4W
R892	1-249-441-11	CARBON	100K	5%	1/4W
R893	1-247-903-00	CARBON	1M	5%	1/4W
R941	1-249-421-11	CARBON	2.2K	5%	1/4W F
R942	1-249-441-11	CARBON	100K	5%	1/4W
R943	1-249-417-11	CARBON	1K	5%	1/4W F
R945	1-249-429-11	CARBON	10K	5%	1/4W
R946	1-247-887-00	CARBON	220K	5%	1/4W
R947	1-249-421-11	CARBON	2.2K	5%	1/4W F
R948	1-249-421-11	CARBON	2.2K	5%	1/4W F
R951	1-249-417-11	CARBON	1K	5%	1/4W F
R952	1-249-417-11	CARBON	1K	5%	1/4W F
R961	1-249-437-11	CARBON	47K	5%	1/4W (E,MX)
R962	1-249-437-11	CARBON	47K	5%	1/4W (E,MX)
⚠R971	1-212-881-11	FUSIBLE	100	5%	1/4W
R972	1-249-425-11	CARBON	4.7K	5%	1/4W F
R973	1-249-435-11	CARBON	33K	5%	1/4W
R974	1-249-429-11	CARBON	10K	5%	1/4W
⚠R981	1-202-972-61	FUSIBLE	1	5%	1/4W
⚠R982	1-202-972-61	FUSIBLE	1	5%	1/4W
R991	1-249-421-11	CARBON	2.2K	5%	1/4W F
R992	1-249-441-11	CARBON	100K	5%	1/4W
R993	1-249-417-11	CARBON	1K	5%	1/4W F
		< RELAY >			
RY801	1-515-920-11	RELAY (24V)			
		< THERMISTOR (POSITIVE) >			
THP841	1-807-796-11	THERMISTOR			
		< TERMINAL >			
TM801	1-694-677-12	TERMINAL BOARD (4P) (SPEAKER)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

AMP **BD**

Ref. No.	Part No.	Description			Remarks
		< TRANSFORMER >			
⚠T911	1-435-850-11	TRANSFORMER, POWER (AEP,UK)			
⚠T911	1-435-851-11	TRANSFORMER, POWER (E,KR,MX)			
**********					
	A-4728-678-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C103	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C104	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C108	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C109	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C110	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C111	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C112	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C114	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C116	1-104-665-11	ELECT	100uF	20.00%	10V
C117	1-104-665-11	ELECT	100uF	20.00%	10V
C118	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C121	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C122	1-124-584-00	ELECT	100uF	20%	10V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C124	1-107-823-11	CERAMIC CHIP	0.47uF	10.00%	16V
C125	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C126	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C127	1-124-584-00	ELECT	100uF	20%	10V
C129	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C130	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C131	1-104-665-11	ELECT	100uF	20.00%	10V
C133	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C143	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C145	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C153	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C159	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C162	1-104-665-11	ELECT	100uF	20.00%	10V
C165	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C167	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C168	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C171	1-115-412-11	CERAMIC CHIP	680PF	5.00%	25V
C172	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C181	1-115-412-11	CERAMIC CHIP	680PF	5.00%	25V
C182	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C183	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C184	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C185	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C190	1-115-156-11	CERAMIC CHIP	1uF		10V
C191	1-124-584-00	ELECT	100uF	20%	10V
C192	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C193	1-104-665-11	ELECT	100uF	20.00%	10V
C194	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C195	1-163-038-91	CERAMIC CHIP	0.1uF		25V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
C196	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C197	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
C198	1-124-584-00	ELECT	100uF	20%	10V
		< CONNECTOR >			
CN101	1-568-864-11	CONNECTOR, FFC 21P			
CN102	1-793-907-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D101	8-719-056-77	DIODE UDZ-TE-17-3.9B			
		< FERRITE BEAD >			
FB101	1-500-445-21	FERRITE	0UH		
FB102	1-500-445-21	FERRITE	0UH		
		< IC >			
IC101	8-752-402-31	IC CXD3017Q			
IC102	8-759-827-41	IC BA5974FM-E2			
IC103	8-752-089-74	IC CXA2581N-T4			
		< JUMPER RESISTOR >			
JR101	1-216-295-91	SHORT	0		
JR102	1-216-295-91	SHORT	0		
JR103	1-216-295-91	SHORT	0		
JR104	1-216-295-91	SHORT	0		
JR105	1-216-295-91	SHORT	0		
JR106	1-216-295-91	SHORT	0		
JR122	1-216-296-11	SHORT	0		
JR123	1-216-296-11	SHORT	0		
JR124	1-216-296-11	SHORT	0		
JR125	1-216-296-11	SHORT	0		
		< COIL >			
L101	1-469-553-21	INDUCTOR	4.7uH		
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR	MSB710-RT1		
Q102	8-729-920-85	TRANSISTOR	2SD1664-T100-QR		
		< RESISTOR >			
R101	1-216-049-11	RES-CHIP	1K	5%	1/10W
R102	1-216-097-11	RES-CHIP	100K	5%	1/10W
R103	1-216-077-91	RES-CHIP	15K	5%	1/10W
R104	1-216-085-91	RES-CHIP	33K	5%	1/10W
R105	1-216-049-11	RES-CHIP	1K	5%	1/10W
R106	1-216-049-11	RES-CHIP	1K	5%	1/10W
R107	1-216-073-91	RES-CHIP	10K	5%	1/10W
R108	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R109	1-216-121-11	RES-CHIP	1M	5%	1/10W
R111	1-216-099-00	METAL CHIP	120K	5%	1/10W
R114	1-218-745-11	RES-CHIP	160K	5%	1/10W
R116	1-216-001-00	METAL CHIP	10	5%	1/10W
R117	1-216-049-11	RES-CHIP	1K	5%	1/10W
R118	1-216-025-11	RES-CHIP	100	5%	1/10W
R119	1-216-059-00	METAL CHIP	2.7K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R120	1-216-077-91	RES-CHIP	15K	5%	1/10W
R122	1-216-097-11	RES-CHIP	100K	5%	1/10W
R123	1-216-073-91	RES-CHIP	10K	5%	1/10W
R124	1-216-097-11	RES-CHIP	100K	5%	1/10W
R131	1-216-033-00	METAL CHIP	220	5%	1/10W
R143	1-216-085-91	RES-CHIP	33K	5%	1/10W
R144	1-216-085-91	RES-CHIP	33K	5%	1/10W
R147	1-216-058-00	RES-CHIP	2.4K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-001-00	METAL CHIP	10	5%	1/10W
R158	1-216-083-00	METAL CHIP	27K	5%	1/10W
R159	1-216-083-00	METAL CHIP	27K	5%	1/10W
R162	1-216-097-11	RES-CHIP	100K	5%	1/10W
R171	1-216-081-00	METAL CHIP	22K	5%	1/10W
R172	1-216-081-00	METAL CHIP	22K	5%	1/10W
R173	1-216-081-00	METAL CHIP	22K	5%	1/10W
R181	1-216-081-00	METAL CHIP	22K	5%	1/10W
R182	1-216-081-00	METAL CHIP	22K	5%	1/10W
R183	1-216-081-00	METAL CHIP	22K	5%	1/10W
R190	1-216-033-00	METAL CHIP	220	5%	1/10W
R191	1-216-085-91	RES-CHIP	33K	5%	1/10W
R192	1-216-085-91	RES-CHIP	33K	5%	1/10W
R193	1-216-099-00	METAL CHIP	120K	5%	1/10W
R194	1-216-085-91	RES-CHIP	33K	5%	1/10W
R195	1-216-105-91	RES-CHIP	220K	5%	1/10W
R196	1-216-045-00	METAL CHIP	680	5%	1/10W
R198	1-216-295-91	SHORT	0		
		< NETWORK RESISTOR >			
RN101	1-233-576-11	RES, CHIP NETWORK 100			
		< VARIABLE RESISTOR >			
RV101	1-238-602-11	RES, ADJ, CARBON 47K			
		< VIBRATOR >			
X101	1-579-280-11	VIBRATOR, CRYSTAL 16.9344MHz			
**********					
	1-683-369-11	DISPLAY BOARD **********			
		< CAPACITOR >			
C760	1-162-286-31	CERAMIC	220PF	10%	50V
C761	1-162-286-31	CERAMIC	220PF	10%	50V
C762	1-162-286-31	CERAMIC	220PF	10%	50V
C763	1-162-286-31	CERAMIC	220PF	10%	50V
C764	1-126-964-11	ELECT	10uF	20.00%	50V
C765	1-126-964-11	ELECT	10uF	20.00%	50V
C766	1-107-714-11	ELECT	10uF	20.00%	16V
C769	1-104-665-11	ELECT	100uF	20.00%	10V
		< DIODE >			
D760	8-719-075-50	DIODE SELS6B14C-TP6 (LCD BACK LIGHT)			
D761	8-719-075-50	DIODE SELS6B14C-TP6 (LCD BACK LIGHT)			
D762	8-719-075-50	DIODE SELS6B14C-TP6 (LCD BACK LIGHT)			
D763	8-719-075-50	DIODE SELS6B14C-TP6 (LCD BACK LIGHT)			

Ref. No.	Part No.	Description			Remarks
		< LIQUID CRYSTAL DISPLAY >			
LCD777	1-804-602-11	DISPLAY PANEL, LIQUID CRYSTAL			
		< TRANSISTOR >			
Q760	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
		< RESISTOR >			
R760	1-247-807-31	CARBON	100	5%	1/4W
R761	1-247-807-31	CARBON	100	5%	1/4W
R762	1-247-807-31	CARBON	100	5%	1/4W
R763	1-247-807-31	CARBON	100	5%	1/4W
R764	1-249-425-11	CARBON	4.7K	5%	1/4W F
R765	1-249-429-11	CARBON	10K	5%	1/4W
R766	1-249-429-11	CARBON	10K	5%	1/4W
R767	1-249-411-11	CARBON	330	5%	1/4W
R768	1-249-411-11	CARBON	330	5%	1/4W
**********					
	1-678-463-11	DISK SENSOR BOARD **********			
		< IC >			
IC751	8-749-924-30	PHOTO REFLECTOR GP2S28			
		< RESISTOR >			
R751	1-247-807-31	CARBON	100	5%	1/4W
**********					
	1-678-460-11	DRIVER BOARD **********			
		< CAPACITOR >			
C701	1-124-261-00	ELECT	10uF	20%	50V
C705	1-124-261-00	ELECT	10uF	20%	50V
C706	1-164-159-21	CERAMIC	0.1uF		50V
C707	1-164-159-21	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN701	1-785-324-11	PIN, CONNECTOR (STRAIGHT) 12P			
CN702	1-785-328-11	PIN, CONNECTOR (LIGHT ANGRE)2P			
CN703	1-785-331-11	PIN, CONNECTOR (LIGHT ANGLE)5P			
CN704	1-785-329-11	PIN, CONNECTOR (LIGHT ANGLE)3P			
CN705	1-785-329-21	PIN, CONNECTOR (LIGHT ANGLE)3P			
		< IC >			
IC701	8-759-598-69	IC BA6956AN			
		< TRANSISTOR >			
Q701	8-729-029-66	TRANSISTOR	RT1N141S-TP		
		< RESISTOR >			
R701	1-249-429-11	CARBON	10K	5%	1/4W
R702	1-249-401-11	CARBON	47	5%	1/4W F
R705	1-249-433-11	CARBON	22K	5%	1/4W
R706	1-249-417-11	CARBON	1K	5%	1/4W F
R707	1-249-427-11	CARBON	6.8K	5%	1/4W F
**********					

FRONT INPUT | IN OUT SW | MAIN

Ref. No.	Part No.	Description			Remarks
	1-683-370-11	FRONT INPUT BOARD			
		**********			
		< CAPACITOR >			
C776	1-162-294-31	CERAMIC	0.001uF	10%	50V
C777	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< GROUND >			
ETP702	1-537-738-21	TERMINAL, GROUND			
		< JACK >			
J771	1-691-293-21	JACK (PHONES)			
	1-678-462-11	IN OUT SW BOARD			
		**********			
		< SWITCH >			
S741	1-771-821-11	SWITCH, PUSH (1 KEY) (IN)			
S742	1-771-821-11	SWITCH, PUSH (1 KEY) (OUT)			
	A-4440-796-A	MAIN BOARD, COMPLETE (AEP,UK)			
		**********			
	A-4440-800-A	MAIN BOARD, COMPLETE (KR)			
		**********			
	A-4676-505-A	MAIN BOARD, COMPLETE (E,MX)			
		**********			
	7-685-646-79	SCREW +BVTP	3X8	TYPE2 N-S	
		< CAPACITOR >			
C101	1-126-937-11	ELECT	4700uF	20.00%	16V
C102	1-126-956-91	ELECT	0.1uF	20.00%	50V
C104	1-126-935-11	ELECT	470uF	20.00%	10V
C105	1-126-956-91	ELECT	0.1uF	20.00%	50V
C106	1-126-935-11	ELECT	470uF	20.00%	10V
C107	1-126-935-11	ELECT	470uF	20.00%	10V
C111	1-136-165-00	FILM	0.1uF	5.00%	50V
C112	1-136-165-00	FILM	0.1uF	5.00%	50V
C151	1-126-953-11	ELECT	2200uF	20.00%	35V
C152	1-126-956-91	ELECT	0.1uF	20.00%	50V
C153	1-126-935-11	ELECT	470uF	20.00%	16V
C154	1-126-956-91	ELECT	0.1uF	20.00%	50V
C155	1-126-935-11	ELECT	470uF	20.00%	10V
C156	1-126-956-91	ELECT	0.1uF	20.00%	50V
C157	1-126-935-11	ELECT	470uF	20.00%	10V
C201	1-126-964-11	ELECT	10uF	20.00%	50V
C202	1-126-964-11	ELECT	10uF	20.00%	50V
C203	1-126-964-11	ELECT	10uF	20.00%	50V
C205	1-126-964-11	ELECT	10uF	20.00%	50V
C206	1-126-964-11	ELECT	10uF	20.00%	50V
C208	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C209	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C211	1-130-487-00	MYLAR	0.022uF	5%	50V
C212	1-130-487-00	MYLAR	0.022uF	5%	50V
C213	1-126-964-11	ELECT	10uF	20.00%	50V

Ref. No.	Part No.	Description			Remarks
C214	1-130-491-00	MYLAR	0.047uF	5%	50V
C215	1-130-479-00	MYLAR	0.0047uF	5%	50V
C216	1-126-964-11	ELECT	10uF	20.00%	50V
C217	1-130-491-00	MYLAR	0.047uF	5%	50V
C218	1-130-491-00	MYLAR	0.047uF	5%	50V
C221	1-126-964-11	ELECT	10uF	20.00%	50V
C222	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C231	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C232	1-104-665-11	ELECT	100uF	20.00%	10V
C233	1-104-665-11	ELECT	100uF	20.00%	10V
C234	1-107-714-11	ELECT	10uF	20.00%	50V
C235	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C237	1-130-491-00	MYLAR	0.047uF	5%	50V
C251	1-126-964-11	ELECT	10uF	20.00%	50V
C252	1-126-964-11	ELECT	10uF	20.00%	50V
C253	1-126-964-11	ELECT	10uF	20.00%	50V
C255	1-126-964-11	ELECT	10uF	20.00%	50V
C256	1-126-964-11	ELECT	10uF	20.00%	50V
C258	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C261	1-130-487-00	MYLAR	0.022uF	5%	50V
C262	1-130-487-00	MYLAR	0.022uF	5%	50V
C263	1-126-964-11	ELECT	10uF	20.00%	50V
C264	1-130-491-00	MYLAR	0.047uF	5%	50V
C265	1-130-479-00	MYLAR	0.0047uF	5%	50V
C266	1-126-964-11	ELECT	10uF	20.00%	50V
C267	1-130-491-00	MYLAR	0.047uF	5%	50V
C268	1-130-491-00	MYLAR	0.047uF	5%	50V
C271	1-126-964-11	ELECT	10uF	20.00%	50V
C301	1-115-872-11	ELECT	2.2uF	20.00%	50V
C306	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C308	1-119-941-91	ELECT	470uF	20.00%	6.3V
C309	1-126-382-11	ELECT	100uF	20.00%	10V
C311	1-115-872-11	ELECT	2.2uF	20.00%	50V
C318	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C321	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C331	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C332	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C333	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C334	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C335	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C336	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C337	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C339	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C351	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C352	1-124-584-00	ELECT	100uF	20%	10V
C361	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C362	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C363	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C410	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C411	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C412	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C416	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C417	1-126-916-11	ELECT	1000uF	20.00%	6.3V
C424	1-125-891-11	CERAMIC CHIP	0.47uF	10.00%	10V
C426	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V

Ref. No.	Part No.	Description			Remarks
C428	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C462	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C463	1-104-665-11	ELECT	100uF	20.00%	10V
C501	1-126-964-11	ELECT	10uF	20.00%	50V
C502	1-136-165-00	FILM	0.1uF	5.00%	50V
C503	1-136-165-00	FILM	0.1uF	5.00%	50V
		< CONNECTOR >			
CN101	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P			
CN102	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P			
CN301	1-568-864-11	CONNECTOR, FFC 21P			
CN321	1-568-828-11	CONNECTOR, FFC 9P			
CN322	1-785-323-11	PIN, CONNECTOR (STRAIGHT) 11P			
CN323	1-784-776-11	CONNECTOR, FFC 15P (AEP,UK)			
CN323	1-568-830-11	CONNECTOR, FFC 11P (E,KR,MX)			
CN401	1-784-778-11	CONNECTOR, FFC 17P			
CN402	1-785-321-11	PIN, CONNECTOR (STRAIGHT) 9P			
CN501	1-785-315-11	PIN, CONNECTOR (STRAIGHT) 3P			
		< DIODE >			
D101	8-719-988-61	DIODE 1SS355TE-17			
D321	8-719-988-61	DIODE 1SS355TE-17			
D501	8-719-988-61	DIODE 1SS355TE-17			
D502	8-719-988-61	DIODE 1SS355TE-17			
D503	8-719-988-61	DIODE 1SS355TE-17			
D504	8-719-988-61	DIODE 1SS355TE-17			
D507	8-719-988-61	DIODE 1SS355TE-17			
D508	8-719-988-61	DIODE 1SS355TE-17			
D509	8-719-988-61	DIODE 1SS355TE-17			
D510	8-719-988-61	DIODE 1SS355TE-17			
D511	8-719-988-61	DIODE 1SS355TE-17			
D512	8-719-988-61	DIODE 1SS355TE-17			
D514	8-719-988-61	DIODE 1SS355TE-17			
		< EARTH >			
* EP101	1-537-738-21	TERMINAL, EARTH			
* EP301	1-537-738-21	TERMINAL, EARTH			
		< FERRITE BEAD >			
FB302	1-414-772-11	FERRITE	0UH		
FB303	1-414-772-11	FERRITE	0UH		
FB304	1-414-772-11	FERRITE	0UH		
FB319	1-414-772-11	FERRITE	0UH		
FB320	1-414-772-11	FERRITE	0UH		
		< IC >			
IC101	6-701-760-01	IC uPC3504AHF			
IC102	8-759-231-53	IC TA7805S			
IC151	8-759-231-57	IC TA7810S			
IC152	8-759-701-59	IC TA7809S			
IC153	8-759-071-48	IC TA7807S			
IC201	6-702-422-11	IC M61519FPD61G			
IC351	8-749-923-04	IC TOTX178A (CD DIGITAL OUT)			
IC401	6-801-054-01	IC M30622MGN-A00FP			
IC501	8-759-532-64	IC M62703SL-TP			

Ref. No.	Part No.	Description			Remarks
		< JACK >			
J201	1-770-272-11	JACK, PIN 2P (MD IN)			
		< COIL >			
L301	1-410-482-31	INDUCTOR	100uH		
L351	1-410-482-31	INDUCTOR	100uH		
		< TRANSISTOR >			
Q101	8-729-049-79	TRANSISTOR	RT1P137S-TP		
Q102	8-729-900-53	TRANSISTOR	DTC114EKA-T146		
Q211	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q261	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q281	8-729-027-23	TRANSISTOR	DTA114EKA-T146		
Q283	8-729-900-53	TRANSISTOR	DTC114EKA-T146		
Q301	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q302	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q303	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
Q304	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q305	8-729-141-30	TRANSISTOR	2SC3623ATP-LK		
Q306	8-729-141-30	TRANSISTOR	2SC3623ATP-LK		
Q321	8-729-116-57	TRANSISTOR	2SB1068TP-K		
Q322	8-729-140-04	TRANSISTOR	2SB1116-TP-LK		
Q323	8-729-900-53	TRANSISTOR	DTC114EKA-T146		
Q324	8-729-900-53	TRANSISTOR	DTC114EKA-T146		
Q501	8-729-119-78	TRANSISTOR	2SC2785TP-HFE		
		< RESISTOR >			
R206	1-216-821-11	METAL CHIP	1K	5%	1/16W
R207	1-216-845-11	METAL CHIP	100K	5%	1/16W
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R212	1-216-833-11	METAL CHIP	10K	5%	1/16W
R215	1-216-833-11	METAL CHIP	10K	5%	1/16W
R216	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R217	1-216-845-11	METAL CHIP	100K	5%	1/16W
R231	1-216-821-11	METAL CHIP	1K	5%	1/16W
R232	1-216-809-11	METAL CHIP	100	5%	1/16W
R237	1-216-833-11	METAL CHIP	10K	5%	1/16W
R256	1-216-821-11	METAL CHIP	1K	5%	1/16W
R257	1-216-845-11	METAL CHIP	100K	5%	1/16W
R261	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R262	1-216-833-11	METAL CHIP	10K	5%	1/16W
R265	1-216-833-11	METAL CHIP	10K	5%	1/16W
R266	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R267	1-216-845-11	METAL CHIP	100K	5%	1/16W
R281	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R283	1-216-833-11	METAL CHIP	10K	5%	1/16W
R284	1-216-849-11	METAL CHIP	220K	5%	1/16W
R301	1-216-809-11	METAL CHIP	100	5%	1/16W
R302	1-216-839-11	METAL CHIP	33K	5%	1/16W
R305	1-216-833-11	METAL CHIP	10K	5%	1/16W
R306	1-216-833-11	METAL CHIP	10K	5%	1/16W
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W
R308	1-216-833-11	METAL CHIP	10K	5%	1/16W
R309	1-216-821-11	METAL CHIP	1K	5%	1/16W
R310	1-216-821-11	METAL CHIP	1K	5%	1/16W
R311	1-216-809-11	METAL CHIP	100	5%	1/16W
R312	1-216-839-11	METAL CHIP	33K	5%	1/16W

MAIN

Ref. No.	Part No.	Description			Remarks
R321	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R322	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R323	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R324	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R325	1-216-833-11	METAL CHIP	10K	5%	1/16W
R326	1-216-841-11	METAL CHIP	47K	5%	1/16W
R327	1-216-837-11	METAL CHIP	22K	5%	1/16W
R328	1-216-833-11	METAL CHIP	10K	5%	1/16W
R331	1-216-841-11	METAL CHIP	47K	5%	1/16W
R332	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R333	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R334	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R335	1-216-819-11	METAL CHIP	680	5%	1/16W
R336	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R337	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R402	1-216-809-11	METAL CHIP	100	5%	1/16W (AEP,UK)
R403	1-216-809-11	METAL CHIP	100	5%	1/16W
R404	1-216-809-11	METAL CHIP	100	5%	1/16W
R405	1-216-809-11	METAL CHIP	100	5%	1/16W
R406	1-216-809-11	METAL CHIP	100	5%	1/16W
R407	1-216-809-11	METAL CHIP	100	5%	1/16W
R409	1-216-833-11	METAL CHIP	10K	5%	1/16W
R411	1-216-851-11	METAL CHIP	330K	5%	1/16W
R413	1-216-864-11	METAL CHIP	0	5%	1/16W
R417	1-216-833-11	METAL CHIP	10K	5%	1/16W
R418	1-216-809-11	METAL CHIP	100	5%	1/16W (AEP,UK)
R419	1-216-809-11	METAL CHIP	100	5%	1/16W
R420	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R421	1-216-809-11	METAL CHIP	100	5%	1/16W
R422	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R423	1-216-809-11	METAL CHIP	100	5%	1/16W
R424	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R425	1-216-809-11	METAL CHIP	100	5%	1/16W
R426	1-216-849-11	METAL CHIP	220K	5%	1/16W
R427	1-216-809-11	METAL CHIP	100	5%	1/16W
R428	1-216-845-11	METAL CHIP	100K	5%	1/16W
R429	1-216-809-11	METAL CHIP	100	5%	1/16W
R430	1-216-809-11	METAL CHIP	100	5%	1/16W
R432	1-216-809-11	METAL CHIP	100	5%	1/16W
R433	1-216-809-11	METAL CHIP	100	5%	1/16W
R434	1-216-809-11	METAL CHIP	100	5%	1/16W
R435	1-216-809-11	METAL CHIP	100	5%	1/16W
R436	1-216-809-11	METAL CHIP	100	5%	1/16W
R437	1-216-809-11	METAL CHIP	100	5%	1/16W
R438	1-216-809-11	METAL CHIP	100	5%	1/16W
R439	1-216-809-11	METAL CHIP	100	5%	1/16W
R441	1-216-809-11	METAL CHIP	100	5%	1/16W
R442	1-216-809-11	METAL CHIP	100	5%	1/16W
R443	1-216-809-11	METAL CHIP	100	5%	1/16W
R444	1-216-809-11	METAL CHIP	100	5%	1/16W
R445	1-216-809-11	METAL CHIP	100	5%	1/16W
R446	1-216-809-11	METAL CHIP	100	5%	1/16W
R447	1-216-809-11	METAL CHIP	100	5%	1/16W
R448	1-216-809-11	METAL CHIP	100	5%	1/16W
R449	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R450	1-216-809-11	METAL CHIP	100	5%	1/16W
R451	1-216-809-11	METAL CHIP	100	5%	1/16W
R452	1-216-809-11	METAL CHIP	100	5%	1/16W
R453	1-216-809-11	METAL CHIP	100	5%	1/16W
R456	1-216-809-11	METAL CHIP	100	5%	1/16W
R457	1-216-809-11	METAL CHIP	100	5%	1/16W
R460	1-216-809-11	METAL CHIP	100	5%	1/16W
R467	1-216-809-11	METAL CHIP	100	5%	1/16W
R468	1-216-809-11	METAL CHIP	100	5%	1/16W
R469	1-216-809-11	METAL CHIP	100	5%	1/16W
R470	1-216-809-11	METAL CHIP	100	5%	1/16W
R471	1-216-809-11	METAL CHIP	100	5%	1/16W
R472	1-216-809-11	METAL CHIP	100	5%	1/16W
R473	1-216-809-11	METAL CHIP	100	5%	1/16W
R474	1-216-809-11	METAL CHIP	100	5%	1/16W
R476	1-216-809-11	METAL CHIP	100	5%	1/16W
R477	1-216-809-11	METAL CHIP	100	5%	1/16W
R481	1-216-809-11	METAL CHIP	100	5%	1/16W
R482	1-216-809-11	METAL CHIP	100	5%	1/16W
R484	1-216-809-11	METAL CHIP	100	5%	1/16W
R485	1-216-809-11	METAL CHIP	100	5%	1/16W
R486	1-216-809-11	METAL CHIP	100	5%	1/16W
R487	1-216-809-11	METAL CHIP	100	5%	1/16W
R488	1-216-809-11	METAL CHIP	100	5%	1/16W
R490	1-216-809-11	METAL CHIP	100	5%	1/16W
R501	1-216-813-11	METAL CHIP	220	5%	1/16W
R502	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R503	1-216-841-11	METAL CHIP	47K	5%	1/16W
R504	1-216-841-11	METAL CHIP	47K	5%	1/16W
R505	1-216-833-11	METAL CHIP	10K	5%	1/16W
R511	1-216-833-11	METAL CHIP	10K	5%	1/16W
R531	1-216-864-11	METAL CHIP	0	5%	1/16W
R533	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (E,MX)
R533	1-216-864-11	METAL CHIP	0	5%	1/16W (KR)
R534	1-216-864-11	METAL CHIP	0	5%	1/16W (AEP,UK)
R534	1-216-821-11	METAL CHIP	1K	5%	1/16W (E,MX)
R541	1-216-817-11	METAL CHIP	470	5%	1/16W
R542	1-216-835-11	METAL CHIP	15K	5%	1/16W
R543	1-216-817-11	METAL CHIP	470	5%	1/16W
R544	1-216-835-11	METAL CHIP	15K	5%	1/16W
R545	1-216-817-11	METAL CHIP	470	5%	1/16W
R546	1-216-835-11	METAL CHIP	15K	5%	1/16W
R571	1-216-864-11	METAL CHIP	0	5%	1/16W (E,KR,MX)
R572	1-216-864-11	METAL CHIP	0	5%	1/16W (E,KR,MX)
R573	1-216-833-11	METAL CHIP	10K	5%	1/16W
R574	1-216-833-11	METAL CHIP	10K	5%	1/16W
R575	1-216-833-11	METAL CHIP	10K	5%	1/16W
R576	1-216-833-11	METAL CHIP	10K	5%	1/16W
R577	1-216-833-11	METAL CHIP	10K	5%	1/16W
R578	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R579	1-216-833-11	METAL CHIP	10K	5%	1/16W
R580	1-216-833-11	METAL CHIP	10K	5%	1/16W
R581	1-216-833-11	METAL CHIP	10K	5%	1/16W
R582	1-216-833-11	METAL CHIP	10K	5%	1/16W
R583	1-216-833-11	METAL CHIP	10K	5%	1/16W
R584	1-216-833-11	METAL CHIP	10K	5%	1/16W
R585	1-216-833-11	METAL CHIP	10K	5%	1/16W
R586	1-216-833-11	METAL CHIP	10K	5%	1/16W
R587	1-216-833-11	METAL CHIP	10K	5%	1/16W
R589	1-216-833-11	METAL CHIP	10K	5%	1/16W
		< SWITCH >			
S401	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY)			
		< VIBRATOR >			
X401	1-781-107-21	VIBRATOR, SERAMIC 16 MHz			
X402	1-567-098-41	VIBRATOR, CRYSTAL 32.768 kHz			
**********					
	1-678-461-11	MOTOR BOARD			
		**********			
		< CAPACITOR >			
C721	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
**********					
	A-4727-759-A	PANEL BOARD, COMPLETE			
		**********			
	4-237-502-01	HOLDER (LCD)			
	4-237-522-01	SHEET, DIFFUSION			
		< CAPACITOR >			
C703	1-126-947-11	ELECT	47uF	20.00%	10V
C704	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C705	1-162-282-31	CERAMIC	100PF	10%	50V
C740	1-126-934-11	ELECT	220uF	20.00%	16V
		< CONNECTOR >			
CN700	1-784-739-11	CONNECTOR, FFC 17P			
* CN720	1-568-942-11	PIN, CONNECTOR 4P			
		< DIODE >			
D701	8-719-812-44	DIODE SEL5220S-TP15			
D740	8-719-050-84	DIODE RB441Q-40T-72			
D741	8-719-058-64	DIODE SEL5823A-TP15			
D742	8-719-058-64	DIODE SEL5823A-TP15			
D743	8-719-058-64	DIODE SEL5823A-TP15			
D746	8-719-812-44	DIODE SEL5220S-TP15			
		< IC >			
IC701	8-759-826-34	IC NJL74H400A (REMOTE SENSOR)			
		< TRANSISTOR >			
Q701	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
Q740	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
Q741	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q742	8-729-119-76	TRANSISTOR	2SA1175TP-HFE		
Q744	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
Q745	8-729-029-66	TRANSISTOR	DTC114ESA-TP		

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R701	1-249-413-11	CARBON	470	5%	1/4W F
R705	1-249-401-11	CARBON	47	5%	1/4W F
R710	1-249-415-11	CARBON	680	5%	1/4W F
R711	1-249-417-11	CARBON	1K	5%	1/4W F
R712	1-249-419-11	CARBON	1.5K	5%	1/4W F
R713	1-249-419-11	CARBON	1.5K	5%	1/4W F
R720	1-249-415-11	CARBON	680	5%	1/4W F
R721	1-249-417-11	CARBON	1K	5%	1/4W F
R722	1-249-419-11	CARBON	1.5K	5%	1/4W F
R723	1-249-419-11	CARBON	1.5K	5%	1/4W F
R724	1-249-421-11	CARBON	2.2K	5%	1/4W F
R725	1-247-843-11	CARBON	3.3K	5%	1/4W
R726	1-249-425-11	CARBON	4.7K	5%	1/4W F
R729	1-249-415-11	CARBON	680	5%	1/4W F
R730	1-249-417-11	CARBON	1K	5%	1/4W F
R731	1-249-419-11	CARBON	1.5K	5%	1/4W F
R732	1-249-419-11	CARBON	1.5K	5%	1/4W F
R733	1-249-421-11	CARBON	2.2K	5%	1/4W F
R734	1-247-843-11	CARBON	3.3K	5%	1/4W
R735	1-249-425-11	CARBON	4.7K	5%	1/4W F
R736	1-249-427-11	CARBON	6.8K	5%	1/4W F
R737	1-249-429-11	CARBON	10K	5%	1/4W
R738	1-249-431-11	CARBON	15K	5%	1/4W
R739	1-249-433-11	CARBON	22K	5%	1/4W
R740	1-247-807-31	CARBON	100	5%	1/4W
R742	1-247-807-31	CARBON	100	5%	1/4W
R743	1-247-807-31	CARBON	100	5%	1/4W
R745	1-249-410-11	CARBON	270	5%	1/4W F
R746	1-249-410-11	CARBON	270	5%	1/4W F
R747	1-249-410-11	CARBON	270	5%	1/4W F
R750	1-249-410-11	CARBON	270	5%	1/4W F
R752	1-249-429-11	CARBON	10K	5%	1/4W
R753	1-249-417-11	CARBON	1K	5%	1/4W F
R754	1-249-433-11	CARBON	22K	5%	1/4W
R756	1-249-433-11	CARBON	22K	5%	1/4W
		< SWITCH >			
S700	1-762-875-21	SWITCH, KEYBOARD (POWER)			
S701	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)			
S710	1-762-875-21	SWITCH, KEYBOARD (TUNER MEMORY/DIRECTION)			
S711	1-762-875-21	SWITCH, KEYBOARD (ENTER)			
S712	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE/TUNING MODE)			
S713	1-762-875-21	SWITCH, KEYBOARD (REPEAT/FM MODE)			
S714	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)			
S720	1-762-875-21	SWITCH, KEYBOARD (EQ EDIT)			
S721	1-762-875-21	SWITCH, KEYBOARD (GROOVE)			
S722	1-762-875-21	SWITCH, KEYBOARD (MUSIC MENU)			
S723	1-762-875-21	SWITCH, KEYBOARD (STOP)			
S724	1-762-875-21	SWITCH, KEYBOARD (CD)			
S725	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)			
S726	1-762-875-21	SWITCH, KEYBOARD (MD)			
S727	1-762-875-21	SWITCH, KEYBOARD (TAPE)			
S730	1-762-875-21	SWITCH, KEYBOARD (EJECT)			
S731	1-762-875-21	SWITCH, KEYBOARD (CD3)			
S732	1-762-875-21	SWITCH, KEYBOARD (EJECT)			
S733	1-762-875-21	SWITCH, KEYBOARD (CD2)			
S734	1-762-875-21	SWITCH, KEYBOARD (EJECT)			

PANEL SUB POWER TC

Ref. No.	Part No.	Description				Remarks
S735	1-762-875-21	SWITCH, KEYBOARD (CD1)				
S736	1-762-875-21	SWITCH, KEYBOARD (DBFB)				
S737	1-762-875-21	SWITCH, KEYBOARD (SURROUND)				
S738	1-762-875-21	SWITCH, KEYBOARD (EDIT)				
S739	1-762-875-21	SWITCH, KEYBOARD (CD SYNC)				
S740	1-762-875-21	SWITCH, KEYBOARD (REC PAUSE/START)				
S741	1-762-875-21	SWITCH, KEYBOARD (DIMMER)				
**********						
	1-683-634-11	SUB POWER BOARD				
		**********				
		< CAPACITOR >				
⚠C911	1-113-925-11	CERAMIC	0.01uF	20.00%	250V	
C912	1-126-768-11	ELECT	2200uF	20.00%	16V	
C913	1-124-584-00	ELECT	100uF	20%	10V	
		< CONNECTOR >				
CN911	1-564-321-00	PIN, CONNECTOR 2P				
		< DIODE >				
⚠D911	8-719-911-19	DIODE 1SS133T-72				
D912	8-719-024-99	DIODE 11ES2-NTA2B				
D913	8-719-024-99	DIODE 11ES2-NTA2B				
D914	8-719-024-99	DIODE 11ES2-NTA2B				
D915	8-719-024-99	DIODE 11ES2-NTA2B				
		< IC >				
IC911	6-701-760-01	IC uPC3504AHF				
		< TRANSISTOR >				
Q911	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
		< RESISTOR >				
R911	1-249-429-11	CARBON	10K	5%	1/4W	
R912	1-249-441-11	CARBON	100K	5%	1/4W	
R913	1-249-401-11	CARBON	47	5%	1/4W	F
		< RELAY >				
⚠RY911	1-755-276-11	RELAY, POWER				
		< TRANSFORMER >				
⚠T911	1-435-850-11	TRANSFORMER, POWER (AEP,UK)				
⚠T911	1-435-851-11	TRANSFORMER, POWER (E,KR,MX)				
**********						
	A-4727-763-A	TC BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C601	1-126-947-11	ELECT	47uF	20.00%	16V	
C602	1-130-483-00	MYLAR	0.01uF	5%	50V	
C604	1-130-495-00	MYLAR	0.1uF	5%	50V	
C605	1-126-964-11	ELECT	10uF	20.00%	50V	
C606	1-126-960-11	ELECT	1uF	20.00%	50V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description				Remarks
C607	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C608	1-126-961-11	ELECT	2.2uF	20.00%	50V	
C610	1-162-961-11	CERAMIC CHIP	330PF	10%	50V	
C611	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	
C612	1-162-946-11	CERAMIC CHIP	27PF	5%	50V	
C613	1-164-392-11	CERAMIC CHIP	390PF	10.00%	50V	
C614	1-130-483-00	MYLAR	0.01uF	5%	50V	
C630	1-126-935-11	ELECT	470uF	20.00%	16V	
C632	1-126-964-11	ELECT	10uF	20.00%	50V	
C633	1-126-964-11	ELECT	10uF	20.00%	50V	
C634	1-126-964-11	ELECT	10uF	20.00%	50V	
C635	1-126-960-11	ELECT	1uF	20.00%	50V	
C639	1-126-964-11	ELECT	10uF	20.00%	50V	
C640	1-126-947-11	ELECT	47uF	20.00%	16V	
C641	1-126-961-11	ELECT	2.2uF	20.00%	50V	
⚠C642	1-137-150-11	MYLAR	0.01uF	5.00%	100V	
C643	1-130-485-00	MYLAR	0.015uF	5%	50V	
C644	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C645	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C646	1-130-486-00	MYLAR	0.018uF	10%	50V	
C647	1-126-964-11	ELECT	10uF	20.00%	50V	
C651	1-126-947-11	ELECT	47uF	20.00%	16V	
C652	1-130-483-00	MYLAR	0.01uF	5%	50V	
C654	1-130-495-00	MYLAR	0.1uF	5%	50V	
C655	1-126-964-11	ELECT	10uF	20.00%	50V	
C656	1-126-960-11	ELECT	1uF	20.00%	50V	
C657	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C658	1-126-961-11	ELECT	2.2uF	20.00%	50V	
C660	1-162-961-11	CERAMIC CHIP	330PF	10%	50V	
C661	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	
C662	1-162-946-11	CERAMIC CHIP	27PF	5%	50V	
C663	1-164-392-11	CERAMIC CHIP	390PF	10.00%	50V	
C664	1-130-483-00	MYLAR	0.01uF	5%	50V	
		< IC >				
IC601	6-701-655-01	IC HA12236F				
IC602	8-759-508-69	IC BA3126N				
		< JUMPER RESISTOR >				
JR600	1-216-864-11	METAL CHIP	0	5%	1/16W	
JR602	1-216-296-11	SHORT	0			
		< JUMPER RESISTOR >				
JW629	1-216-864-11	METAL CHIP	0	5%	1/16W	
		< COIL >				
L601	1-410-780-11	INDUCTOR	27MH			
L651	1-410-780-11	INDUCTOR	27MH			
		< TRANSISTOR >				
Q639	8-729-049-79	TRANSISTOR	RT1P137S-TP			
Q640	8-729-029-66	TRANSISTOR	DTC114ESA-TP			
Q641	8-729-801-93	TRANSISTOR	2SD1387-34-TP			
Q642	8-729-142-46	TRANSISTOR	2SC2001TP-LK			
Q643	8-729-142-46	TRANSISTOR	2SC2001TP-LK			
Q680	8-729-029-66	TRANSISTOR	DTC114ESA-TP			
Q681	8-729-029-40	TRANSISTOR	DTA124ESA-TP			

TC TRANS TRAY SENSOR VOL VOL SEL

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R601	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R602	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R603	1-216-864-11	METAL CHIP	0	5%	1/16W
R604	1-216-833-11	METAL CHIP	10K	5%	1/16W
R605	1-216-841-11	METAL CHIP	47K	5%	1/16W
R606	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R607	1-216-833-11	METAL CHIP	10K	5%	1/16W
R609	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R610	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R611	1-216-837-11	METAL CHIP	22K	5%	1/16W
R630	1-216-857-11	METAL CHIP	1M	5%	1/16W
R631	1-216-837-11	METAL CHIP	22K	5%	1/16W
R632	1-216-821-11	METAL CHIP	1K	5%	1/16W
R633	1-216-821-11	METAL CHIP	1K	5%	1/16W
R635	1-216-809-11	METAL CHIP	100	5%	1/16W
R640	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R641	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R642	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
⚠R643	1-219-787-17	FUSIBLE	5.6	5%	1/4W
⚠R644	1-219-787-17	FUSIBLE	5.6	5%	1/4W
R645	1-216-836-11	METAL CHIP	18K	5%	1/16W
R646	1-216-836-11	METAL CHIP	18K	5%	1/16W
R648	1-216-864-11	METAL CHIP	0	5%	1/16W
R651	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R652	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R653	1-216-864-11	METAL CHIP	0	5%	1/16W
R654	1-216-833-11	METAL CHIP	10K	5%	1/16W
R655	1-216-841-11	METAL CHIP	47K	5%	1/16W
R656	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R657	1-216-833-11	METAL CHIP	10K	5%	1/16W
R659	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R660	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R661	1-216-837-11	METAL CHIP	22K	5%	1/16W
R680	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
		< VARIABLE RESISTOR >			
RV602	1-241-765-11	RES, ADJ, CARBON 22K			
RV603	1-241-768-11	RES, ADJ, CARBON 220K			
RV652	1-241-765-11	RES, ADJ, CARBON 22K			
RV653	1-241-768-11	RES, ADJ, CARBON 220K			
		< TRANSFORMER >			
T601	1-423-980-11	TRANSFORMER, BIAS OSCILLATION			
**********					
	1-683-632-11	TRANS BOARD			
		**********			
	1-533-217-31	HOLDER, FUSE			
		< CAPACITOR >			
⚠C901	1-136-165-00	FILM	0.1uF	5.00%	50V
⚠C902	1-136-165-00	FILM	0.1uF	5.00%	50V
⚠C905	1-136-165-00	FILM	0.1uF	5.00%	50V
		< CONNECTOR >			
CN901	1-564-321-00	PIN, CONNECTOR 2P (AEP,UK,KR,MX)			
* CN902	1-564-523-11	PLUG, CONNECTOR 8P			

Ref. No.	Part No.	Description			Remarks
		< DIODE >			
D901	8-719-028-23	DIODE D3SBA20-4101			
		< RESISTOR >			
⚠R901	1-219-119-81	FUSIBLE	0.1	5%	1/4W
⚠R902	1-219-119-81	FUSIBLE	0.1	5%	1/4W
**********					
	1-678-457-11	TRAY SENSOR BOARD			
		**********			
		< CAPACITOR >			
C731	1-164-159-21	CERAMIC	0.1uF		50V
		< PHOTO SENSOR >			
IC731	8-749-016-76	PHOTO SENSOR DG-264			
IC732	8-749-016-76	PHOTO SENSOR DG-264			
IC733	8-749-016-76	PHOTO SENSOR DG-264			
		< RESISTOR >			
R731	1-247-876-11	CARBON	75K	5%	1/4W
R732	1-247-807-31	CARBON	100	5%	1/4W
R733	1-247-876-11	CARBON	75K	5%	1/4W
R734	1-247-807-31	CARBON	100	5%	1/4W
R735	1-247-876-11	CARBON	75K	5%	1/4W
R736	1-247-807-31	CARBON	100	5%	1/4W
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	1-683-368-11	VOL BOARD			
		**********			
		< CAPACITOR >			
C701	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C702	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C707	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C708	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
		< RESISTOR >			
R727	1-249-427-11	CARBON	6.8K	5%	1/4W F
R728	1-249-429-11	CARBON	10K	5%	1/4W
		< SWITCH >			
S702	1-473-534-11	ENCODER, ROTARY (VOL)			
S728	1-786-289-11	SWITCH, DETECTION (⏮ – /◀◀, ▷▷⏭ + /▶▶)			
**********					
	1-683-633-11	VOL SEL BOARD (E)			
		**********			
		< CONNECTOR >			
CN941	1-568-106-11	PIN, CONNECTOR 4P			
CN942	1-564-321-00	PIN, CONNECTOR 2P			
CN943	1-774-108-11	PIN, CONNECTOR (PC BOARD)			
		< SWITCH >			
⚠S943	1-786-055-21	SELECTOR, VOLTAGE (VOLTAGE SELECTOR)			
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The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**********	
5	1-796-351-21	MECHANISM, SIGNAL CASSETTE	
7	1-693-570-21	TUNER UNIT (FM/AM) (AEP,UK)	
7	1-693-572-71	TUNER UNIT (FM/AM) (KR,MX)	
7	1-693-574-71	TUNER UNIT (FM/AM) (E)	
11	1-769-910-11	WIRE (FLAT TYPE) (9 CORE)	
11	1-769-945-11	WIRE (FLAT TYPE) (11 CORE) (E,KR,MX)	
11	1-773-009-11	WIRE (FLAT TYPE) (15 CORE) (AEP,UK)	
64	1-773-037-11	WIRE (FLAT TYPE) (17 CORE)	
109	1-769-079-21	CORD, POWER (KR)	
⚠109	1-777-071-81	CORD, POWER (AEP,UK)	
⚠109	1-791-901-11	CORD, POWER (E,MX)	
306	1-757-710-11	WIRE (FLAT TYPE) (16 CORE)	
580	1-757-523-11	WIRE (FLAT TYPE) (21 CORE)	
⚠F901	1-533-466-11	FUSE, GLASS TUBE (DIA. 5)(1.25A/250V)	(AEP,UK)
⚠F901	1-533-469-11	FUSE, GLASS TUBE (DIA. 5)(2.5A/250V) (E,MX)	
⚠F902	1-533-466-11	FUSE, GLASS TUBE (DIA. 5)(1.25A/250V) (E,KR)	
⚠F903	1-533-465-11	FUSE, GLASS TUBE (DIA. 5)(1A/250V) (E)	
M721	1-763-790-11	MOTOR, DC (LOADING MOTOR)	
⚠T901	1-435-831-11	TRANSFORMER, POWER (E,KR,MX)	
⚠T901	1-437-558-11	TRANSFORMER, POWER (AEP,UK)	
**********			
		ACCESSORIES	
		**********	
⚠	1-770-019-51	ADAPTOR, CONVERSION PLUG (UK)	

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